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Cover picture • Plans for the new campus of the Philadelphia College of Osteopathy are rapidly being consumated. This campus on City Line Road, purchased for $900,000, is a heavily wooded tract of nineteen and a half acres, on which is located a huge mansion, one of the show places of Philadelphia during earlier years of its existence. This building has been converted into the Administration Building of the College. It contains spacious offices for the administrative officers, College board of trustees, and the College auxiliary. The second floor has been converted into teaching rooms for post-doctorate classes. This building already is being used by the president, the dean of the graduate school, and the bursar; and the teaching rooms have been in use for the past year. All permanent records will be maintained in the Administration Building.

Osteopathic education

LAWRENCE W. MILLS, Director, Office of Education, American Osteopathic Association, Chicago, Illinois

Osteopathic college enrollment 1960-61

The so-called premedical enrollment is, in general, below average in the undergraduate college senior classes during the present academic year throughout the United States. The junior classes show a slightly higher number of students interested in eventually making application to medical schools. It is encouraging to report that a significantly increased number of freshmen entering undergraduate colleges in the fall of 1960 are planning to enter the field of medicine. The number of undergraduate college sophomores preparing for entrance into medical schools also is larger than the number in the junior classes.

The student recruiting project initiated by the National Health Council 6 years ago and being carried on by a number of the healing art professions undoubtedly accounts for the apparent increase in the number of freshmen entering college in 1960 who have indicated their interest in medicine. The program of the National Health Council is directed to high school and junior high school students.

The American Osteopathic Association has been emphasizing student recruitment through the efforts of individual doctors and official committees in the various state societies. Many of these societies have been and are continuing to emphasize vocational guidance and student recruiting as their number one organizational project. The osteopathic profession does not feel that the recruiting of highly qualified people of high school age for the medical fields should be done by high school counselors and premedical advisers. These individuals are charged with the responsibility of bringing pertinent material to the attention of their students, but it is up to each profession to do its own recruiting. "Grass roots" recruiting or recruiting based on the "doctor-patient" relationship is thought to be the real basis of any program. Also, much valuable recruiting is done by students already enrolled in professional schools.

Because of the competition which now exists for the students with the personal and academic qualities deemed necessary for entrance into schools of the healing art, it is necessary for each profession to carry on a constant and effective student recruiting program.

Applications for admission to osteopathic colleges for the academic year starting in the fall of 1960 did not show a decrease from the number of applications from the entering classes of the fall of 1959. Unfortunately, for the past several years, one or two osteopathic colleges have experienced a large number of last-minute cancellations. Lack of money, failure to complete the required credits for admission, or a last-minute decision to attend another osteopathic college nearer home usually accounts for these last-minute cancellations. Last year, the Philadelphia College of Osteopathy especially was hard hit when 23 applicants who had been granted full acceptance or placed on the alternate list failed to matriculate. Consequently, there were 14 empty places in that college in 1959. In 1960, only 75 first-year students matriculated at the Kansas City College of Osteopathy and Surgery, which for years has been admitting a freshman class of 100. Most of the drop-outs were accounted for by failure to complete certain prerequisite subjects for admission or to maintain the required grade level. On the other hand, the Philadelphia College, which had experienced a series of late cancellations in 1959, granted acceptances to a larger number of applicants in 1960 and started the academic year with 11 more students

than its expected class of 80. The comparatively small entering class at Kansas City College of Osteopathy and Surgery accounts almost entirely for the over-all decrease in the six entering classes.

TABLE I—ENROLLMENT 1960-61

College	First-year students	Second-year students	Third-year students	Fourth-year students	Total
CCO	68	64	53	63	248
COMS	71	72	66	73	282
COPS	94	98	85	99	376
KC	75	103	99	107	384
KCOS	97	83	87	85	352
PCO	91	65	67	79	302
Total	496	485	457	506	1,944

The abbreviations used for the osteopathic colleges in all the tables in this Supplement are as follows:
CCO—Chicago College of Osteopathy
COMS—College of Osteopathic Medicine and Surgery, Des Moines, Iowa
COPS—College of Osteopathic Physicians and Surgeons, Los Angeles
KC—Kansas City College of Osteopathy and Surgery
KCOS—Kirksville College of Osteopathy and Surgery
PCO—Philadelphia College of Osteopathy

The 1960-61 enrollment of 1,944 for the six osteopathic colleges shows an increase of 29 over the enrollment of 1959-60. This is due to a large fourth-year class. Consequently the over-all 1961-62 enrollment will show a decrease.

Graduating classes

In the spring of 1960, the six osteopathic colleges graduated 427 students, which was below the average of 450 a year. This class experienced an attrition rate of 9.4 per cent, the highest of any class during the past several years. It also was one of the smallest entering classes. It is pointed out, however, that the class graduating from osteopathic colleges in 1961 will be the largest in the history of osteopathic education.

TABLE II—GRADUATING CLASSES

College	Number of graduates 1960	Estimated number of graduates, 1961
CCO	59	63
COMS	52	73
COPS	73	99
KC	94	107
KCOS	66	85
PCO	83	79
Total	427	506

Enrollment since 1950

Since 1950, the capacity of approximately 1,900 predoctorate students in the six osteopathic colleges has remained fixed. Fund-raising activities of the American Osteopathic Association since 1950 have been geared to the effort to improve facilities and increase the faculty, but not to increase the student capacity. At present, twenty-three osteopathic state organizations are supporting osteopathic education through increased state dues. These increases range from $100 to $200 per member and represent nearly 80 per cent of the members of the osteopathic profession. There are many doctors in these states who also are contributing far more than the increases in state dues to osteopathic colleges.

In 1959-60, over a million dollars was raised through the Osteopathic Progress Fund for current operating expenses, implementation of faculty, and improvement of facilities. In the future, financial support of osteopathic education from without the profession will be earmarked for the most part for expansion of the presently existing osteopathic colleges and for the establishment of new colleges, which will result in increased enrollment.

TABLE III—ENROLLMENT SINCE 1951

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
CCO	237	240	221	223	235	232	239	246	248	248
COMS	278	254	246	227	226	218	241	258	268	282
COPS	359	348	344	336	346	355	368	361	359	376
KC	318	342	365	366	378	370	381	402	403	384
KCOS	374	368	343	331	319	316	339	348	340	352
PCO	362	365	378	384	379	375	353	327	297	302
Total	1928	1917	1897	1867	1883	1866	1921	1942	1915	1944

Women students in osteopathic colleges

Table IV shows the distribution of women students by classes in the various osteopathic colleges. In 1960 there was a decided drop in the number of first-year women students matriculating. In 1959, more women entered osteopathic colleges than in any year since the close of World War II. The admissions committees of the osteopathic colleges report that the ratio between acceptances and applications is higher for women than it is for men.

Professional careers in osteopathic medicine result in the same remuneration for women as for men. In the osteopathic profession women occupy high offices in professional organizations and serve on the faculties of osteopathic colleges and on hospital and clinical staffs.

TABLE IV—NUMBER OF WOMEN IN OSTEOPATHIC COLLEGES, 1960-61

College	First-year students	Second-year students	Third-year students	Fourth-year students	Total
CCO	1	2	2	2	7
COMS	—	2	—	1	3
COPS	4	2	2	3	11
KC	—	3	1	1	5
KCOS	1	4	1	—	6
PCO	2	2	—	2	6
Total	8	15	6	9	38

Preprofessional training of first-year students

Table V lists the preprofessional colleges, by states, where 1960 first-year students received their required training for entrance into osteopathic colleges. Some students attended more than one undergraduate college. The undergraduate colleges as listed, 212 in 40 states, are where the 496 first-year students in osteopathic colleges received most of their preprofessional work or where they received their bachelor's degrees.

TABLE V—WHERE OSTEOPATHIC FIRST-YEAR STUDENTS RECEIVED PREPROFESSIONAL TRAINING, FALL 1960

STATE AND COLLEGES	CCO	COMS	COPS	KC	KCOS	PCO	TOTAL
ALABAMA							
Alabama Polytechnic Institute		1		1			2
Spring Hill College				1			1
University of Alabama	1						1
Total	1	1		2			4
ALASKA							0
ARIZONA							
Arizona State University			4		1		5
Phoenix College		1					1
University of Arizona				1			1
Total		1	4	1	1		7
ARKANSAS							
Arkansas State College	1						1
Henderson State Teachers College					1		1
Little Rock University				1			1
Total	1			1	1		3
CALIFORNIA							
El Camino College			3				3
Fresno State College			1				1
Humboldt State College			1				1
La Sierra College			1				1
Long Beach State College			8				8
Los Angeles City College			1	1			2
Los Angeles State College			3				3
Loyola University of Los Angeles			2				2
Occidental College			1				1
Pasadena College			2		1		3
Pepperdine College			5				5
San Bernardino Valley College			1				1
San Diego State College			1	1			2
San Jose State College			1				1
Stanford University			2				2
University of California, Berkeley			3				3
University of California, Los Angeles			10		1		11
University of California, Riverside			4				4
University of California, Santa Barbara			1				1
University of Southern California			12				12
Total			63	2	2		67
COLORADO							
Colorado State University				1			1
University of Colorado			1	1			2
University of Denver				1	1		2
Total			1	3	1		5
CONNECTICUT							
Fairfield University				1			1
University of Bridgeport						2	2
Total				1		2	3
DELAWARE							
University of Delaware	1						1
Total	1						1
DISTRICT OF COLUMBIA							
American University						1	1
Catholic University of America						1	1
Howard University						1	1
Washington Missionary College				3			3
Total				3		3	6
FLORIDA							
Florida Agricultural and Mechanical University						1	1
Stetson University					1		1
University of Miami			1				1
Total			1		1	1	3
GEORGIA							
Emory University			1				1
Valdosta State College					1		1
Total			1		1		2
HAWAII							0
IDAHO							
Northwest Nazarene College			1				1
Total			1				1
ILLINOIS							
Elmhurst College			1				1
Illinois Wesleyan University	1						1
Loyola University				1			1
Roosevelt University	1				1		2
Southern Illinois University					1		1
University of Chicago		1					1
University of Illinois		3					3
Total		6		1	1	2	10
INDIANA							
Ball State Teachers College					1		1
Butler University			1				1
DePauw University				1			1
Evansville College				1			1
Indiana University			1				1
Purdue University		1					1
University of Notre Dame		1					1
Total		2		2	1		7
IOWA							
Drake University			2				2
Iowa State College of Agriculture and Mechanic Arts					1		1
St. Ambrose College			1				1
State University of Iowa			1	1	2		4
University of Dubuque			1				1
Total			5	1	3		9
KANSAS							
Baker University				2			2
Kansas State College of Agriculture and Applied Science				1	1		2
Ottawa University		1					1
Southwestern College					1		1
University of Kansas			1	1	1		4
Total		1	1	1	4	3	10
KENTUCKY							
Asbury College			1				1
Eastern Kentucky State College					1		1
Georgetown College					1		1
Murray State College					1		1
Union College				1			1
University of Kentucky		1					1
Total		1	1		1	3	6
LOUISIANA							
Xavier University				1			1
Total				1			1
MAINE							0
MARYLAND							
Morgan State College						1	1
Mount St. Mary's College						1	1
Total						2	2
MASSACHUSETTS							
Boston University			1	1		1	3
Clark University			1				1
Massachusetts College of Pharmacy					1		1
Springfield College					1		1
Suffolk University			2				2
Total			4	1	2	1	8
MICHIGAN							
Albion College		3					3
Alma College				1			1
Calvin College		1					1
Detroit Institute of Technology		1					1
Eastern Michigan University		1	1	1	2		5
Ferris Institute		3			1		4
Great Lakes College		1					1
Hillsdale College		1	2				3
Michigan College of Mining and Technology					1		1
Michigan State University of Agriculture and Applied Science		2	2	1	1		6
Northern Michigan College		1					1
Olivet College				1			1
University of Detroit		8		1	4		14
University of Michigan		2	5		2	1	10
Wayne State University		16	16	1	3		36
Western Michigan University		3					3
Total		43	26	1	6	14	1	91
MINNESOTA							
University of Minnesota				1			1
Total				1			1
MISSISSIPPI							
Mississippi Southern College					1		1
Total					1		1

STATE AND COLLEGES		CCO	COMS	COPS	KC	KCOS	PCO	TOTAL
MISSOURI								
Central Missouri State College			1					1
Culver-Stockton College						1		1
Northeast Missouri State Teachers College					3	13	1	17
Rockhurst College					1			1
St. Louis University						2		2
Southeast Missouri State College					1			1
University of Kansas City					3			3
University of Missouri						3		3
Westminster College						1		1
	Total		1		8	20	1	30
MONTANA								
NEBRASKA								
Creighton University			1		1			2
Nebraska State Teachers College						1		1
University of Nebraska						1		1
	Total		1		1	2		4
NEVADA								0
NEW HAMPSHIRE								0
NEW JERSEY								
Fairleigh-Dickinson College			1					1
Monmouth College						1		1
Montclair State College				1				1
Rutgers University			2	1			2	5
Seton Hall University		1					1	2
	Total	1	3	2		1	3	10
NEW MEXICO								
New Mexico Highlands University			1					1
University of New Mexico					1			1
	Total		1		1			2
NEW YORK								
Adelphia College			1					1
Alfred University				1				1
Brooklyn College		1	2		4	5	5	17
Canisius College						1	1	2
City College of New York						2		2
Colgate University							1	1
Columbia University				2	1		2	5
Cornell University			1			1		2
Fordham University						1	1	2
Ithaca College						1		1
Long Island University						1	1	2
New York University						1	2	3
Niagara University						1	1	2
St. Bonaventure College						1		1
St. John's University						3	2	5
Syracuse University							1	1
Union College			1					1
University of Buffalo			1			3		4
	Total	1	6	3	5	21	17	53
NORTH CAROLINA								
Wilmington College						1		1
	Total					1		1
NORTH DAKOTA								
Jamestown College						1		1
	Total					1		1
OHIO								
Bluffton College				1				1
Bowling Green State University		1			1			2
Capital University			1					1
Central State College			1					1
Defiance College					1			1
Denison University		1						1
Fenn College			1					1
John Carroll University							1	1
Kent State University			1					1
Kenyon College							1	1
Marietta College			1					1
Miami University		2			1			3
Mount Union College			1					1
Ohio State University		3	1	2		1		7
Ohio University						1		1
Otterbein College						1		1
University of Akron		1						1
University of Cincinnati		1			1			2
University of Dayton			1			1		2
University of Toledo					1			1
Western Reserve University			1		1			2
Youngstown University					1			1
	Total	9	9	3	7	4	2	34

STATE AND COLLEGES		CCO	COMS	COPS	KC	KCOS	PCO	TOTAL
OKLAHOMA								
Bethany-Nazarene College			1					1
Northeastern State College			1	1	1			3
Phillips University					1			1
Southwestern State College					2			2
University of Oklahoma					2			2
University of Tulsa			1					1
	Total		3	1	6			10
OREGON								
Oregon State College				1				1
	Total			1				1
PENNSYLVANIA								
Albright College							2	2
Dickinson College							2	2
Duquesne University							1	1
Elizabethtown College							1	1
Franklin and Marshall College							1	1
Gannon College					2	1		3
Gettysburg College							1	1
Haverford College							1	1
King's College							1	1
La Salle College		1	1				3	5
Muhlenberg College							4	4
Pennsylvania Military College							1	1
Pennsylvania State University					1		2	3
Philadelphia College of Pharmacy and Science							10	10
St. Joseph's College							1	1
Temple University			3	1	1	2	20	27
University of Pennsylvania						1	2	3
University of Pittsburgh					1	1	1	3
University of Scranton						1		1
Villanova University							1	1
Wilkes College							1	1
	Total	1	4	2	4	6	56	73
RHODE ISLAND								
University of Rhode Island							1	1
	Total						1	1
SOUTH CAROLINA								0
SOUTH DAKOTA								
University of South Dakota			1					1
	Total		1					1
TENNESSEE								
Southern Missionary College					4			4
University of Chattanooga						2		2
	Total				4	2		6
TEXAS								
Abilene Christian College					1		1	2
Agricultural and Mechanical College of Texas					1			1
Lamar State College of Technology					1	1		2
Midwestern University					1			1
Prairie View Agricultural and Mechanical College					1			1
Saint Edward's University					1			1
Texas Christian University					1			1
Texas Technological College						1		1
Texas Wesleyan College					2			2
University of Corpus Christi					1			1
University of Houston				1				1
University of Texas			1	1		1		3
	Total		1	2	10	3	1	17
UTAH								
Brigham Young University				1				1
	Total			1				1
VERMONT								
Champlain College						1		1
University of Vermont and State Agricultural College				1				1
	Total			1		1		2
VIRGINIA								0
WASHINGTON								
Walla Walla College					1			1
	Total				1			1
WEST VIRGINIA								0
WISCONSIN								0
WYOMING								0
CANADA								0
GRAND TOTALS		68	71	94	75	97	91	496

States leading in number of first-year students

Table VI lists those states which lead in the number of first-year students in osteopathic colleges in 1960 and the number of colleges from which they came. This does not necessarily indicate that these students reside in the states where they received their preprofessional training. Table XI shows the geographic distribution of all students in 1960.

TABLE VI—STATES LEADING IN NUMBER OF FIRST-YEAR STUDENTS, 1960

State	Number of colleges	Number of first-year students
Michigan	16	91
Pennsylvania	21	73
California	20	67
New York	18	53
Ohio	22	34
Missouri	9	30

Table VII shows the states leading in the number of first-year students in osteopathic colleges in the fall of 1959.

TABLE VII—STATES LEADING IN NUMBER OF FIRST-YEAR STUDENTS, 1959

State	Number of colleges	Number of first-year students
California	21	85
Michigan	12	84
Pennsylvania	24	68
New York	18	52
Ohio	17	42
Missouri	10	36

Michigan continues to lead in the number of students electing to study osteopathic medicine. This is the result of an outstanding vocational guidance and student recruiting program being conducted by the osteopathic profession in Michigan and a rapidly expanding hospital program in that state. A year ago, *The Journal of Medical Education* published an article which pointed out that the State of Michigan ranked thirty-first in the number of students per 100,000 entering colleges which grant the M.D. degree. For a number of years California has been among the top three states in the number of students entering osteopathic education. According to information in *The Journal of the American Medical Association,* California ranks considerably lower than Michigan in the number of students per 100,000 entering medical colleges. Pennsylvania consistently has been one of the leading states in the number of first-year students entering osteopathic colleges. This year, Pennsylvania shows an increase from 68 to 73 students and assumes second place.

The preprofessional training of 70 per cent of the six entering classes was furnished by colleges in six states. In these states are located about 54 per cent of the entire osteopathic profession. Five of these states, namely, California, Michigan, Pennsylvania, Missouri, and Ohio, have 67 per cent of the total number of osteopathic hospital beds, and in these states are located the majority of osteopathic hospitals approved for intern and residency training.

All of these states are carrying on active vocational guidance and student recruiting programs. Such programs exist in most other states. It is encouraging to point out that in 1960 there was an increase in the number of students entering osteopathic colleges from Arkansas (1 to 3), Colorado (2 to 5), District of Columbia (4 to 6), Kentucky (4 to 6), Massachusetts (3 to 8), New Mexico (0 to 2), and Tennessee (3 to 6).

Table VIII lists the number of preprofessional colleges and states represented in the first-year classes of the six osteopathic colleges. The Kirksville College of Osteopathy and Surgery and the Kansas City College of Osteopathy and Surgery again are represented by students from more states and more preprofessional colleges than the other osteopathic colleges. There is a noticeable increase in the number of students entering the College of Osteopathic Physicians and Surgeons in Los Angeles from outside the State of California. Sixty-four per cent of the entering first-year students at the Chicago College of Osteopathy came from undergraduate colleges in Michigan.

TABLE VIII—REPRESENTATION OF PREPROFESSIONAL COLLEGES AND STATES IN FIRST-YEAR CLASSES, 1960

College	First-year enrollment	Number of colleges represented	Number of states represented
CCO	68	33	12
COMS	71	44	18
COPS	94	46	22
KC	75	58	23
KCOS	97	63	24
PCO	91	45	13

Preprofessional colleges training largest number of first-year students

Table IX lists the six preprofessional colleges which trained the largest number of students entering in the fall of 1960. For comparative purposes, Table X lists the six colleges which trained the largest number of first-year students entering in the fall of 1959. Nearly one-fourth of the students entering osteopathic colleges in 1960 received undergraduate training in colleges listed in Table IX.

TABLE IX—PREPROFESSIONAL COLLEGES TRAINING LARGEST NUMBER OF FIRST-YEAR STUDENTS, 1960

College	State	Number of first-year students
Wayne State University	Michigan	36
Temple University	Pennsylvania	27
Northeast Missouri State Teachers College	Missouri	17
Brooklyn College	New York	17
University of Detroit	Michigan	14
University of Southern California	California	12

Wayne State University continues its lead for the sixth consecutive year with 36 students. Temple University, which jumped from 16 students in 1959 to 27 in 1960, for the first time ranks second. Brooklyn College joined the top six colleges for the first time since these tables were included in the statistical studies. Northeast Missouri State Teachers College, which initiated an official pre-osteopathic curriculum several years ago, annually attracts a good many students from outside Missouri, who are interested in the combined degree program in that College. Consequently, Northeast Missouri State Teachers College annually is among the leaders.

TABLE X—PREPROFESSIONAL COLLEGES TRAINING LARGEST NUMBER OF FIRST-YEAR STUDENTS, 1959

College	State	Number of first-year students
Wayne State University	Michigan	36
University of California, Los Angeles	California	34
Temple University	Pennsylvania	19
Northeast Missouri State Teachers College	Missouri	14
University of Michigan	Michigan	12
University of Southern California	California	11

Geographic distribution of students, 1960

Table XI shows the geographic distribution of the entire osteopathic predoctorate enrollment according to residence and the osteopathic college attended in relation to the total number of osteopathic physicians located in the various states and countries. Of all predoctorate students in osteopathic colleges, 48.2 per cent give their home addresses in three states, namely, California, Michigan, and Pennsylvania. In these three states, 32 per cent of osteopathic physicans are in practice.

Length of preprofessional training

Tables XII and XIII show the length of preprofessional training which the students entering osteopathic colleges have completed in the fall of 1960 and 1959. In 1960 there was an increase of 3.5 per cent of the entering students with college degrees over the number with degrees admitted in the fall of 1959. Of the entering students, 7.5 per cent were accepted with the minimum of 90 semester hours of undergraduate college credit as compared to 13 per cent in 1959. The average age of the entering students in 1960 was 24 years and 2 months. A large number of the entering students in 1960 have found it necessary to work for several years after completing their undergraduate training to earn the funds necessary to start professional training. Teaching, research, and detail work for

TABLE XI—GEOGRAPHIC DISTRIBUTION OF OSTEOPATHIC STUDENTS, 1960

State or country	CCO	COMS	COPS	KC	KCOS	PCO	Total students	Total D.O.'s
Alabama	2	2		3	1		8	3
Alaska					1		1	1
Arizona		2	5	2	4		13	154
Arkansas				1	1		2	24
California	3	4	322	14	7		350	2,470
Colorado		2	1	3	1		7	223
Connecticut			1		1	3	5	60
Delaware	1			1	1	1	5	31
District of Columbia			1			3	4	19
Florida		3		5	5	1	14	461
Georgia				2	4		6	76
Hawaii		1	1				2	15
Idaho			1	1	2		4	39
Illinois	45	4	2	4	14		69	350
Indiana	11	1		5	10		27	187
Iowa		24		3	7		34	445
Kansas		2		20	4		26	204
Kentucky	3	2		3	7		15	40
Louisiana					1		1	13
Maine				1	2	2	5	214
Maryland		1		2		3	6	18
Massachusetts	1	3	1	1	4	4	14	240
Michigan	123	100	5	39	45	2	314	1,566
Minnesota			3	1			4	82
Mississippi								4
Missouri		1		60	37		98	1,157
Montana					1		1	48
Nebraska		1		4	2		7	56
Nevada								28
New Hampshire					1		1	24
New Jersey	4	10	2	10	15	42	83	433
New Mexico		1		2	3	1	7	109
New York	16	29	9	27	52	45	178	493
North Carolina				2	1		3	33
North Dakota		2		3	2		7	13
Ohio	25	36	4	35	41	5	146	852
Oklahoma		2	2	40	7		51	378
Oregon			1	3	2		6	149
Pennsylvania	6	30	1	24	29	182	273	1,357
Rhode Island				1		7	8	76
South Carolina				1			1	9
South Dakota		1					1	46
Tennessee	1			2	2		5	69
Texas		7	4	44	15		70	681
Utah			1				1	21
Vermont				1			1	32
Virginia				1	2		3	33
Washington		3	2	3	1		9	174
West Virginia		1	1	1	6		9	119
Wisconsin	6	3	1	1	1		12	163
Wyoming				1	2		3	16
Canada	1		1	1	2		5	109
China				1			1	0
Greece					1		1	0
India		1					1	2
Iran		2	1	1	1		5	1
Iraq			1				1	0
Israel					1		1	0
Korea			1		1		2	0
Peru			1				1	0
Puerto Rico		1			1		2	0
Other foreign countries				4			4	88
Totals	248	282	376	384	352	302	1,944	13,708

TABLE XII—LENGTH OF PREPROFESSIONAL TRAINING OF OSTEOPATHIC MATRICULANTS, FALL OF 1960

College	3 years	3+ years	Degree	Advanced degree	Total
CCO	5	13	49	1	68
COMS	10	24	36	1	71
COPS	8	21	60	5	94
KC	5	18	52	—	75
KCOS	8	25	60	4	97
PCO	1	6	83	1	91
Total	37	107	340	12	496
			71%		

TABLE XIII—LENGTH OF PREPROFESSIONAL TRAINING OF OSTEOPATHIC MATRICULANTS, FALL OF 1959

College	3 years	3+ years	Degree	Advanced degree	Total
CCO	15	21	34	1	71
COMS	11	14	45	—	70
COPS	17	10	69	5	101
KC	14	22	65	1	102
KCOS	9	24	61	1	95
PCO	2	5	58	1	66
Total	68	96	332	9	505
			67.5%		

pharmaceutical houses attracted most of the students.

According to information furnished by admissions committees in the osteopathic colleges, this year's entering classes have a higher precentage than previously of students who had decided on osteopathic medicine as a career before the start of undergraduate college training. This undoubtedly is the result of the emphasis which vocational guidance and student recruiting organizations in the various osteopathic societies have placed on secondary schools.

The Committee on Colleges of the Bureau of Professional Education of the American Osteopathic Association and the American Association of Osteopathic Colleges emphasize a good background of English and general education, in addition to the prerequisite courses in the fields of chemistry, biology, and physics. The average student who is interested in the healing art in general is apt to be one who primarily is interested in science. Many students make up their minds to become physicians during high school courses in biology or chemistry. Upon entering undergraduate college they naturally pursue their primary interest, which, in most cases, is a scientific one.

It is natural for the preprofessional student contemplating entering one of the healing arts to choose science—chemistry or biology or a combination of the two—as one of his majors. In most undergraduate colleges and universities, strong courses in English, foreign languages, and the humanities are required for graduation.

The average entering student in osteopathic colleges in 1960 had completed 114 semester hours, including 24 semester hours of chemistry, 26 of biologic science, 8 of physics, and 12 of English. The average student had spent half of his time in the field of science and half in English and the humanities during his preprofessional college training.

Combined degrees

Many students entering osteopathic colleges are interested in securing a B.A. or B.S. degree either before matriculating in the professional school or after completing the first year in the osteopathic college. A number of colleges of arts and sciences have agreed to confer the baccalaureate degree upon their students who do satisfactory work for 3 years and then successfully complete their first year in an approved osteopathic college.

Northeast Missouri State Teachers college was one of the first colleges to set up a combined degree program with osteopathic colleges. Consequently, many students, other than from the State of Missouri, have entered this college with the intention of entering osteopathic education after completing their undergraduate program.

In recent years the combined degree has been granted to students who have completed their first year's work in an osteopathic college by the following colleges and universities:

Arizona State College, Tempe, Arizona
Occidental College, Los Angeles, California
Pepperdine College, Los Angeles, California
Roosevelt College, Chicago, Illinois
DePauw University, Greencastle, Indiana
Iowa Wesleyan College, Mount Pleasant, Iowa
St. Ambrose College, Davenport, Iowa
Springfield College, Springfield, Massachusetts
Albion College, Albion, Michigan
Alma College, Alma, Michigan
Central Michigan College, Mount Pleasant, Michigan
Hillsdale College, Hillsdale, Michigan
Michigan State University, East Lansing, Michigan
Western Michigan College, Kalamazoo, Michigan
St. John's University, Collegeville, Minnesota
Northeast Missouri State Teachers College, Kirksville, Missouri
University of Omaha, Omaha, Nebraska
Brooklyn College, Brooklyn, New York
Colgate University, Hamilton, New York
St. Lawrence University, Canton, New York
Syracuse University, Syracuse, New York
Denison University, Granville, Ohio
Kent State University, Kent, Ohio
University of Toledo, Toledo, Ohio
Oklahoma State University, Stillwater, Oklahoma
Phillips University, Enid, Oklahoma
Thiel College, Greenville, Pennsylvania
West Texas State Teachers College, Canyon, Texas
Utah State Agricultural College, Logan, Utah

Concord College, Athens, West Virginia
West Virginia Wesleyan College, Buckhannon, West Virginia

National osteopathic college scholarships

In the spring of 1960, ten scholarships of $1,000 each were awarded by the Auxiliary to the American Osteopathic Association to students entering osteopathic colleges in 1960. The Auxiliary has increased the value of each scholarship from $1,000 to $1,500 and the number from ten to twelve for 1961. Information about the scholarships is mailed each fall to deans of approved colleges of arts and sciences throughout the United States and Canada. Scholarships which will be awarded in 1961 will be applied to tuition at the rate of $750 per year for the first 2 years in the osteopathic colleges. Applications for the scholarships for entering classes in 1961 will close May 1.

A scholarship applicant must have received at least tentative acceptance from an osteopathic college in order to be eligible to make application for scholarship aid. Information about the scholarship program can be secured from the Office of Education, American Osteopathic Association, 212 East Ohio Street, Chicago 11, Illinois.

Scholarship awards will be made on the basis of quantity and quality of preprofessional work, personality factors, financial need, and motivation toward the osteopathic school of medicine.

In 1960 the ten scholarship winners were as follows:

Name	Preprofessional college attended	Osteopathic college entered
Thomas W. Allen	Ottawa (Kans.) University	Chicago College of Osteopathy
Donald L. Fraser	Western Michigan and Wayne State Universities	Chicago College of Osteopathy
Don Stuart Angelo	Northeast Missouri State Teachers College	Kirksville College of Osteopathy and Surgery
Gail D. Burchett	Northeast Missouri State Teachers College	Kirksville College of Osteopathy and Surgery
Philip Edward Benanti	Brooklyn College of Pharmacy (Long Island University)	Kirksville College of Osteopathy and Surgery
Vernon E. Dahl	Jamestown (N.D.) College	Kirksville College of Osteopathy and Surgery
Norman E. Wood	Northeast Missouri State Teachers College	Kirksville College of Osteopathy and Surgery
Stevane Cordas	Elizabethtown (Pa.) College	Philadelphia College of Osteopathy
Victor D. Herlacher	Pasadena College	College of Osteopathic Physicians and Surgeons
Barry L. Liebowitz	Columbia University	College of Osteopathic Physicians and Surgeons

Additional scholarship aid and awards

The Maine Osteopathic Association initiated a scholarship program in 1953 which provides $500 toward tuition during the first year for a student who has received his preprofessional training in an approved college or university in the State of Maine and who has been accepted for admission to any of the osteopathic colleges. Information regarding this scholarship may be obtained by writing to Heber H. Cleveland, D.O., 169 Ocean Street, South Portland, Maine.

The staff of the Garden City Hospital, Garden City, Michigan, initiated a scholarship program in 1954 which will provide annually at least $360 to be applied toward tuition. The applicant must be a resident of the State of Michigan and must show evidence of financial need. Information about these scholarships may be obtained by writing John T. Baker, D.O., treasurer, Garden City Hospital Scholarship Fund, 1810 North Telegraph Road, Dearborn, Michigan.

The Eastern Oklahoma Osteopathic Association has established a scholarship fund. The award is made on the basis of motivation, personality, and the probability of good professional material. Grade point average is also considered in choosing the recipient of the award. The applicant must reside in the State of Oklahoma. Information about this scholarship may be obtained by writing Lucien L. Nelms, D.O., secretary-treasurer, Eastern Oklahoma Osteopathic Association, Coweta, Oklahoma.

The Texas Association of Osteopathic Physicians and Surgeons in 1960 established two $750 scholarships available to Texas students entering osteopathic colleges as freshmen. Information may be secured by writing to Phil R. Russell, D.O., executive secretary, Texas Association of Osteopathic Physicians and Surgeons, 512 Bailey Street, Fort Worth.

The Washington Osteopathic Association will award two $750 scholarships to students who plan to enter osteopathic colleges in the fall of 1961. Students must be Washington residents and agree to practice for 1 year in Washington after completing their internship or residency. Information may be secured from Mary E. Gillies, D.O., scholarship chairman, 604 Bigelow Building, Seattle 1, Washington.

The Canadian Osteopathic Association awards two scholarships a year to young men and women in Canada who are planning to study osteopathy and to practice in any province of Canada. Information about these scholarships may be obtained by writing to Miss Joyce Currie, secretary, Canadian Osteopathic Association, 609 Medical Arts Building, Montreal 25, Quebec, Canada.

The G. A. Ingram Company of Detroit, Michigan, has set up two scholarships of $250 each for Michigan students in osteopathic colleges who have completed the first year of osteopathic training. The scholarships will be awarded by the Scholarship Committee of the Auxiliary to the American Osteopathic Association, in consultation with a representative of the Ingram Company. Information about these scholarships may be obtained by writing to the Scholarship Chairman, 212 East Ohio Street, Chicago 11, Illinois.

The National Osteopathic Foundation, in 1959, initiated the Russell C. McCaughan scholarships, one for each osteopathic college, for students who had completed their first year of osteopathic training. Each scholarship amounts to about $400.

In 1960, the Pfizer Foundation provided funds to the National Osteopathic Foundation to award one $1,000 scholarship to a student in each of the osteopathic colleges who had completed 2 years of osteopathic training.

The Surgical Equipment Company of Tampa, Florida, has set up an annual award of at least $100 to a Florida resident who has completed his third year's work in an osteopathic college. Information about this award may be secured by writing to the Director of the Office of Education, American Osteopathic Association, 212 East Ohio Street, Chicago 11, Illinois.

Various loan funds are maintained and administered by the osteopathic colleges for third- and fourth-year students. The American Osteopathic Association has for many years administered a large loan fund, which is available to osteopathic students in their third and fourth years upon recommendation of their respective college deans.

The Osteopathic Foundation also maintains a student loan fund for third- and fourth-year students in osteopathic colleges who are recommended by their faculty committees. Inquiries may be sent to the Chairman of the Osteopathic Foundation Student Loan Fund Committee, 212 East Ohio Street, Chicago 11, Illinois.

Educational standards for osteopathic colleges*

Approved by the Board of Trustees of the American Osteopathic Association, 1960

Objectives of an approved osteopathic college

The objectives of an approved osteopathic college shall be to educate its students in the best possible manner in the basic qualities and fundamentals necessary for the highest quality of practice of medicine and surgery in the all-inclusive sense of these terms:

To develop the distinctive osteopathic contributions to medicine;

To contribute to the advancement of knowledge through research;

To contribute opportunities for continuing study for the development of teachers, investigators and practitioners through programs of graduate education.

Accreditation of osteopathic colleges

The agency for evaluation and accreditation is the American Osteopathic Association, acting through its Board of Trustees on recommendation of the Bureau of Professional Education.

The college shall afford to authorized representatives of the American Osteopathic Association opportunities to study and evaluate all aspects of its educational program.

Records of information on students and faculty shall be sent annually to the Central Office of the American Osteopathic Association by the college. Necessary forms will be provided by the Bureau of Professional Education of the American Osteopathic Association. The college shall complete college survey forms as requested by the Bureau of Professional Education.

Accredited colleges shall maintain membership in the American Association of Osteopathic Colleges.

College organization

An osteopathic college shall be incorporated as a nonprofit institution. The governing body shall be the Board of Trustees composed of persons, including a strong representation of laymen, interested in the advancement of the objectives of the

college. Members or officers of the Board shall not receive financial remuneration from the operation of the college or its associated teaching hospitals. The members of the Board shall serve sufficiently long terms so that continuity of the institution's program will be carried out without precipitant change in policy. The Board of Trustees, being the responsible corporate body, is required to establish policy for the direction and guidance of the administration and the educational activities of the institution.

The institution must be organized to conform to accepted standards of professional education as to educational programs, business management, faculty and professional staff.

An osteopathic college cannot carry out the activities necessary for the accomplishment of its objectives solely on the income derived from students' fees. An acceptable college must show adequate additional income.

The college shall be under the direction and supervision of qualified executive officers, selected because of their particular training and experience and capable of interpretation and integration of standards for medical education under osteopathic auspices. Appointment and promotion of the administrative staff and the faculty shall be made by the Board of Trustees upon those recommendations of its executive officers developed after consultation with proper faculty representatives.

A competent teaching faculty shall be selected and it shall be organized into departments. In addition to other qualifications, consideration should be given to training, teaching experience and ability or desire to engage in research.

The faculty should include an adequate number of full-time teachers of professorial rank in all major departments. There should be an adequate number of assistants in the laboratory courses.

Faculty members should have a reasonable security and tenure.

A system of student counseling with qualified advisers shall be established and opportunity for frequent consultation between members of the faculty and of the student body shall be provided.

Faculty meetings shall be held at stated intervals.

Standing committees of the faculty shall be appointed and charged with their responsibilities.

A catalog shall be published at least every other year and include the following: courses offered, time schedules, faculty members, entrance requirements, tuition fees, list of current students and such general information as is necessary to the student body.

Facilities

A college must have for its exclusive use permanent and properly maintained buildings to provide adequate lecture rooms, teaching and research laboratories, library, clinics, storage and record rooms, adequate offices for necessary personnel and a hospital which provides inpatient and outpatient facilities. These facilities will determine the number of students for which the institution can adequately provide an educational program.

The medical library shall include current texts, reference books and the periodicals needed in the teaching and research program. A qualified librarian shall be employed to supervise and develop the library.

Each college shall operate or have access to an adequate outpatient department. Histories and records in this department shall be maintained and utilized as teaching material. It shall be so organized that patients may be cared for in the outpatient department or in their homes.

An osteopathic college must have access, for teaching purposes, to a general hospital or hospitals affiliated with, or under control of, the college.

The college shall appoint those who direct the clinical teaching and shall supervise the staff concerned with teaching in such hospitals in order that students may be properly guided in their contact with patients.

Students shall have the opportunity to observe and study a wide variety of diseases ranging from the common case problems to the complex and rare conditions. They shall also have practical experience in preventive medicine and public health problems. The material available shall be used to its greatest teaching value. The teaching program shall be so organized as to afford a maximum of individual instruction.

Each institution should have a museum of pathological and anatomical specimens, and such adjuncts, including audio-visual aids, as are desirable for effective teaching.

A sufficient number of cadavers should be provided so that every two students may dissect at least a lateral half.

A supply of animals should be provided for use in the college laboratories. Adequate provision shall be made for their care and housing.

Students

A minimum of three years of education in a college or university accredited by a regional educational association is required for admission to professional education in an osteopathic college.* In exceptional cases, an osteopathic college may request that the academic credentials of a highly qualified student, who has completed his preprofessional studies in a college or university not accredited by a regional educational association, be evaluated by the American Osteopathic Association, provided that such a college or university is accredited by its state department of education. Approval of such credentials must be obtained before admission of

*Undergraduate college programs are accredited by the following six regional educational associations:
Middle States Association of Colleges and Secondary Schools
New England Association of Colleges and Secondary Schools
North Central Association of Colleges and Secondary Schools
Northwest Association of Secondary and Higher Schools
Southern Association of Colleges and Secondary Schools
Western College Association.

any such student to an osteopathic college. Each such case shall be considered upon an individual basis.

All approved undergraduate colleges require high school graduation or its equivalent for admission.

The minimum credits in the following basic subjects are required, prior to admission to an osteopathic college: English, 6 semester hours; physics, 8 semester hours;† biology, 8 semester hours;† inorganic chemistry, 8 semester hours; organic chemistry, a completed course, including both the aliphatic and benzene compounds.

It is desirable that the elective subjects afford a broad educational and cultural background.

All transcripts of records from undergraduate and professional colleges shall be obtained directly from such colleges. Transcripts presented directly by the applicant will not be acceptable.

In addition to the academic requirements listed above, applicants to osteopathic colleges shall be selected on the basis of academic performance, motivation toward the healing arts and personal qualifications.

The American Council on Education has evaluated the content and quality of the various educational programs conducted by the Armed Forces and has issued a "Guide to the Evaluation of Educational Experiences in the Armed Forces" to assist educational institutions, desiring to do so, to award proper college credits for specific courses taken in these programs.

The following statement is accepted by the American Osteopathic Association as a basis for the evaluation of equivalency of college credits:

College credits (except in science courses requiring laboratory work or except blanket credits for military services not based on courses or examinations) may be based either on (a) courses taken from the Armed Forces Institute or in-service courses of the Armed Forces according to the "Guide to the Evaluation of Educational Experiences in the Armed Forces" of the American Council on Education, or (b) performance in the General Educational Development Tests of the American Council on Education.

With the consent of the American Osteopathic Association, upon due individual consideration, not more than two years of advanced time credit may be accorded to students presenting credentials from other than osteopathic professional schools. Neither time credit nor subject credit shall be accorded, unless such credit can unmistakably be interpreted as the equivalent of courses in the same subjects over the same period of time in the osteopathic college which grants the credit. In no case shall consideration for advanced credit be given to such a student in the event that he is ineligible for readmission to his previous college.

Credits to be granted and regulations to be followed in the transference of students from one osteopathic college to another shall be in accordance with the regulations of the American Osteopathic Association and the American Association of Osteopathic Colleges.

Graduates must be at least 21 years of age at the time of graduation.

Students shall be required to be in actual attendance within the first week of each term for which they receive credit. Each student shall be required to be in actual attendance in the institution during the four years required for his professional study unless time credit has been accorded for work actually pursued in attendance at another osteopathic college approved by the American Osteopathic Association or in other similarly approved colleges. Students shall complete at least the last year of their professional course in the college which confers the degree.

No credit shall be accorded in courses where the record indicates attendance of less than 80 per cent.

Records of preliminary education and certification thereof shall be kept on file permanently and be available for examination by proper officials. The system of records must show in detail throughout the college course the attendance record, grade and any other notations useful in evaluating each student.

Curriculum

The curriculum in an osteopathic college should be designed to provide medical education and training for the development of a physician. Each college shall develop individualized courses that will serve this purpose in accordance with academic standards of professional education.

Since the osteopathic profession and its colleges maintain their independence and distinction in the general field of medicine because of the contribution which osteopathy makes to the prevention, the diagnosis and the treatment of disease, and because the importance of maintaining the structural integrity of the body should be recognized and emphasized in all departments of practice, approved osteopathic colleges are required to give adequate and comprehensive training in the principles and practice of osteopathic diagnosis and therapeutics.

Each college is required to include a course or courses dealing with the history and development of the osteopathic profession which shall incorporate the scientific growth, alteration and development of the osteopathic theory and practice, and shall include those diagnostic and therapeutic procedures developed by the osteopathic profession.

The curriculum of an osteopathic college shall consist of at least 4 academic years totaling at least 5,000 hours and shall include adequate and comprehensive instruction in:

Anatomy	Tropical Medicine
Parasitology	Embryology
Immunology	Histology
Radiology	Physiology
Surgery	Biochemistry
Orthopedic Surgery	Toxicology

†Or a complete year's course in the undergraduate college involved.

Urology
Otorhinolaryngology
Ophthalmology
Anesthesiology
Osteopathic Theories, Practice and Technic
Internal Medicine
Neurology
Psychiatry
Pediatrics
Dermatology
Pharmacology and Materia Medica
Sanitation
Bacteriology
Pathology
Public Health—Preventive Medicine
Hygiene
Obstetrics and Gynecology
Therapeutics

Educational criteria for clinical clerkship in hospital and the outpatient services

The clerkship program must provide educational experience in the various departments of the hospital.

There must be a definite program of instruction, including case recording and study, clinical observation, collateral reading, didactic work and a regular program of staff lectures and clinical conferences.

There must be adequate daily supervision of the student, and his progress must be reported regularly to the responsible administrative officer.

A properly qualified individual must be designated as in charge of the clerkships in the teaching hospital of the college or an affiliated institution. This individual should be directly responsible to the dean of the college.

Clinical clerkship programs in hospitals which are not on the campus of an osteopathic college, and not under the immediate authority of the college administration, shall be approved only in hospitals having the approval of the American Osteopathic Association for either intern or residency training or both.

The clinical faculty in the affiliated teaching hospitals must be composed of qualified members properly integrated into the faculty of the college.

The sufficiency and diversity of clinical material in the teaching hospitals should determine the number of students to be trained at any one time.

Facilities for clinical clerkship education under the immediate authority of the college which fall in categories other than outpatient departments and teaching hospitals shall be inspected and appraised for approval on an individual basis.

The clinical clerkship programs shall be evaluated by the Bureau of Professional Education in the accreditation procedure for the colleges.

Degrees

The Board of Trustees of an approved college of osteopathy shall confer the degree of Doctor of Osteopathy (D.O.) upon those students who have satisfactorily completed the required courses of instruction and who have been recommended for graduation by the faculty.

An approved osteopathic college may also grant honorary degrees, or degrees-in-course of such nature as shall be warranted by programs of study undertaken in whole or in part in the college or under its auspices.

Organizations for the support and advancement of osteopathic education

Two organizations, The National Osteopathic Foundation and the American Osteopathic Association's Council on Development, have the ultimate purpose of improving the nation's health care through increasing the quality and quantity of osteopathic physicians, colleges, hospitals, and research.

The National Osteopathic Foundation

The National Osteopathic Foundation is a nonprofit, charitable corporation operating under the laws of the State of Illinois. It is affiliated with the American Osteopathic Association, but is a separate legal and financial entity. Its members are prominent lay people and leading osteopathic physicians who have a dedicated interest in the development of the osteopathic profession.

The Foundation is the repository for philanthropic funds, grants, and contributions given to osteopathic education, research, and other programs. These gifts also include those of osteopathic physicians whose cumulative support of the six osteopathic colleges approaches a million dollars annually.

The Foundation's members and directors analyze various socioeconomic factors such as health economics, population increase, scientific advancements, and related sociomedical problems to establish long-range future plans for osteopathic education and research. In so doing, NOF cooperates with other health agencies such as the National Health Council by conducting public-professional service forums and projects.

The Foundation also provides a structure through which the hundreds of lay people now serving the profession as trustees of osteopathic colleges and hospitals, as well as community leaders, act as an advisory group to the American Osteopathic Association on paramedical affairs.

Among the prominent laymen serving on NOF's Board of Directors are: Mr. Herbert E. Evans, president, Peoples Broadcasting Corporation; president, International YMCA; and vice president, Cleveland Browns Football Organization; Mr. Earle R. MacLaughlin, chief engineer, Dow Chemical Corporation; Mr. William T. Brady, president, Corn Products Company; Mr. Edgar L. Harden, president, Northern Michigan College; Mr. Leslie W. Scott, president, Fred Harvey (Restaurant Chain). Mr. Evans is chairman of the Board and Mr. MacLaughlin is vice chairman.

In addition to the operations mentioned above, NOF solicits nonmedically oriented philanthropy for the support of osteopathic education.

Council on Development

The Council on Development is an organization consisting of representatives of osteopathic education, state secretaries, the A.O.A. Board of Trustees, and the Auxiliary to The American Osteopathic Association. A.O.A. professional and staff consultants in administration, public relations, business, and finance also assist the Council activities.

The Council concerns itself with all national publics which the osteopathic profession must inform and cultivate, to perpetuate, expand, and improve its operations. Target publics for the Council's education-promotional activity include the osteopathic profession-at-large and its lay friends, women's groups, patients of osteopathic physicians, educators, firms and corporations, foundations, government, and health agencies. Committees have been assigned in the National Council structure and in twenty-five A.O.A. divisional societies to educate these publics on both a national and local level.

One of the most significant themes being promoted by the Council is the need for industrial and private philanthropic support for osteopathic education, hospitals, and research. Brochures produced by the Council, containing information on the osteopathic profession's contribution to American medicine and its role in meeting the gathering crisis due to the physician shortage, are available from the American Osteopathic Association. Significant results of national and state councils on development in 1960 were: a million-dollar grant to osteopathic education by the Rockefeller family, $625,000 from General Motors Corporation for construction of the Flint (Michigan) Osteopathic Hospital, and eleven scholarship grants to osteopathic physicians and students by the pharmaceutical industry.

Osteopathic Hospitals

The following hospitals meet the minimum standards set by the American Osteopathic Association for: 1) registered or nonteaching hospitals; 2) hospitals approved for the training of interns; and 3) hospitals approved for the training of interns and residents. This approval extends from July 1, 1960, to June 30, 1961.

True B. Eveleth, D.O., Executive Director, A.O.A.

Teaching hospitals are printed in *italics*	Teaching hospitals approved for: Internships	Residencies
Allentown Osteopathic Hospital, 1736 Hamilton St., Allentown, Pa.	x	RAD-1; S-1*
Altadena Community Hospital, 2052 N. Lake Ave., Altadena, Calif.		
Amarillo Osteopathic Hospital, 801 W. Tenth Ave., Amarillo, Texas		
Aransas Hospital, 160 S. 13th St., Aransas Pass, Texas		
Arcade Hospital, 3201 Del Paso Blvd., North Sacramento, Calif.		
Ardmore Osteopathic Hospital, 910 Moore, S.W., Ardmore, Okla.		
Art Centre Hospital, 5435 Woodward Ave., Detroit 2, Mich.	x	ANES-3; I-2; OBG-2; PATH-2; RAD-2; S-2
Audubon Hospital, 607 White Horse Pike, Audubon 6, N.J.		

**For specialty symbols see page 419. Numerals indicate number of residencies offered.*

Teaching hospitals are printed in *italics*	Teaching hospitals approved for: Internships	Residencies
Avon Center Hospital, 55 E. Avon Rd., Rochester, Mich.		
Axtell Osteopathic Hospital, 205 S. Broadway, Princeton, Mo.		
Bangor Osteopathic Hospital, 292 State St., Bangor, Maine	x	RT-1; S-1
Barnes Osteopathic Hospital and Clinic, W. Vermont St., King City, Mo.		
Bashline Osteopathic Hospital and Clinic, Pine and Center Sts., Grove City, Pa.	x	S-2
Bay Osteopathic Hospital, 300 Mulholland St., Bay City, Mich.	x	
Bay View Hospital, 23200 W. Lake Rd., Bay Village, Ohio	x	RTD-1; OBGS-1; S-1
Bellevue Hospital and Clinic, 1115 W. Alabama, Houston 6, Texas		
Belvedere Hospital, 127 S. Utah St., Los Angeles 33, Calif.		
Big Sandy Clinic-Hospital, Gilmer St., Big Sandy, Texas		
Biscayne Osteopathic Hospital, 6337 Biscayne Blvd., Miami 38, Fla.	x	
Blackwoods-Mims Clinic and Hospital, 201 E. Grand Ave., Comanche, Texas		
Brentwood Hospital, 4110 Warrensville Center Rd., Cleveland, Ohio	x	I-1; OR-1; S-1
Burbank Hospital, 466 E. Olive Ave., Burbank, Calif.	x	RTD-1; S-1
Cafaro Memorial Hospital, 1319 Florencedale Ave., Youngstown 4, Ohio	x	
Cape Osteopathic Hospital, 105 S. Spanish St., Cape Girardeau, Mo.		
Cardwell Memorial Hospital, Stella, Mo.		
Carson City Hospital, Elm at Third, Carson City, Mich.	x	S-1
Cassville Osteopathic Hospital, 87 Gravel St., Cassville, Mo.		
Charles E. Still Osteopathic Hospital, 1201 S. Madison St., Jefferson City, Mo.	x	ANES-1; S-1
Chesemore Clinic and Hospital, 715 Morton St., Paris, Tenn.		
Chicago Osteopathic Hospital, 5200 S. Ellis Ave., Chicago 15, Ill.	x	ANES-1; I-2; OBG-2; PATH-2; PD-1; RT-2; S-1
Civic Center Hospital, 390 40th St., Oakland, Calif.	x	
Clare General Hospital, 104 W. Sixth St., Clare, Mich.	x	
Clinic Hospital, 121 S. Pine, Nowata, Okla.		
Coats-Brown Clinic and Hospital, 615 S. Broadway, Tyler, Texas		
Colorado Hospital, 602 Macon, Canon City, Colo.		
Community Hospital, 1405 Holland Ave., Houston 29, Texas	x	
Community Hospital of Los Angeles, 4081 E. Olympic Blvd., Los Angeles 23, Calif.		
Community Medical Center, 2251 Hawthorne Ave., North Sacramento, Calif.	x	
Community Memorial Hospital, 319 Grand Ave., Moberly, Mo.		
Community Memorial Hospital, 2100 Davenport, Sturgis, S. Dak.		
Corpus Christi Osteopathic Hospital, 1202 Third St., Corpus Christi, Texas	x	
Crater Osteopathic Hospital, 600 S. Second St., Central Point, Ore.		
Crews Hospital and Clinic, 307 St. Francis St., Gonzales, Texas		
Currey Clinic-Hospital, 901 N. Jefferson, Mt. Pleasant, Texas		
Dallas Osteopathic Hospital, 5003 Ross Ave., Dallas 6, Texas	x	ANES-1; PATH-1; S-2
Davenport Osteopathic Hospital, 1111 W. Kimberly, Davenport, Iowa	x	I-1
Delaware Valley Hospital, Wilson Ave. and Pond St., Bristol, Pa.	x	S-1
Delgado Green Cross Hospital, Box D, Ysleta Station, El Paso, Texas		
Denison Hospital and Clinic, 417 W. Woodard St., Denison, Texas		
Des Moines General Hospital, 603 E. 12th St., Des Moines 16, Iowa	x	ANES-2; I-1; OBG-1; RAD-1; S-2
Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.	x	ANES-6; I-8; OBG-5; OALR-2; OR-3; PATH-4; RAD-4; S-8
Doctors Hospital, 1087 Dennison Ave., Columbus 1, Ohio	x	ANES-2; I-3; OBG-1; OALR-2; OR-2; RAD-3; S-4
Doctors Hospital, 5500 39th St., Groves, Texas		
Doctors Hospital, 5815 Airline Drive, Houston 9, Texas		
Doctors Hospital, 2821 Riverside Ave., Jacksonville 5, Fla.		
Doctors Hospital, 2501 Gillham Rd., Kansas City 8, Mo.		
Doctors Hospital, 325 W. Jefferson Blvd., Los Angeles 7, Calif	x	S-1
Doctors Hospital, 401 15th St. N., St. Petersburg, Fla.		
Doctors Hospital, 300 W. Call St., Starke, Fla.		
Doctors Hospital, 2160 Idlewood Rd., Tucker, Ga.		
Doctors Memorial Osteopathic Hospital, 700 E. Sunshine, Springfield, Mo.		
Doctors Osteopathic Hospital, 239 W. 10th St., Erie, Pa.	x	RT-1
Donley Osteopathic Hospital and Clinic, 437 N. Cedar St., Kingman, Kansas		

Teaching hospitals are printed in *italics*	Teaching hospitals approved for	
	Internships	Residencies
East Liverpool Osteopathic Hospital, 332 W. 6th St., East Liverpool, Ohio		
East Town Osteopathic Hospital, 7525 Scyene Rd., Dallas 27, Texas	x	
Edgewater Hospital, 1705 N. Prospect Ave., Milwaukee 2, Wis.		
Elliston Clinic and Hospital, 707 S. Main St., Covington, Tenn.		
Elm Street Hospital and Clinic, 212 S. Elm St., Denton, Texas		
Erie Osteopathic Hospital, 234 W. Sixth St., Erie, Pa.	x	
Flint General Hospital, 765 E. Hamilton Ave., Flint 5, Mich.	x	ANES-1; RAD-1; S-1
Flint Osteopathic Hospital, 416 W. Fourth Ave., Flint 3, Mich.	x	ANES-2; I-2; OBG-2; OALR-1; PATH-2; PD-1; RAD-2; S-2
Forest Hill Hospital, 924 E. 152nd St., Cleveland 10, Ohio	x	
Fort Worth Osteopathic Hospital, 1000 Montgomery St., Fort Worth 7, Texas	x	S-1
Garden City-Ridgewood Hospitals	x	ANES-2; RT-2; OBG-2; S-2
Garden City Hospital, 30548 Ford Rd., Garden City, Mich.		
Ridgewood Hospital, 10000 Geddes Rd., Ypsilanti, Mich.		
Gleason Hospital, 523 Main St., Larned, Kans.	x	
Glendale Community Hospital, 800 S. Adams St., Glendale 5, Calif.	x	PATH-1
Gordon Memorial Hospital, 1816 West St., Sioux City, Iowa		
Granbury General Hospital, 116 S. Houston St., Granbury, Texas		
Granby Community Hospital, 596 High St., Granby, Mo.		
Grand Rapids Osteopathic Hospital, 1919 Boston St., S.E., Grand Rapids 6, Mich.	x	OBG-1; RAD-2; S-4
Grandview Hospital, 405 Grand Ave., Dayton 10, Ohio	x	ANES-3; I-3; OBG-2; OALR-2; OR-2; PATH-2; PD-2; RAD-3; S-4
Green Cross General Hospital, 1900 Twenty-third St., Cuyahoga Falls, Ohio	x	ANES-1; I-1; RTD-1; S-1
Groom Osteopathic Hospital, Box 262, Groom, Texas		
Harrison Miller Memorial Hospital, 210 N. Clark, Hinton, Okla.		
Hillcrest Osteopathic Hospital, 2129 S.W. 59th St., Oklahoma City, Okla.		
Hillside Hospital, 1940 El Cajon Blvd., San Diego 4, Calif.	x	
Hospitals of the Kansas City College of Osteopathy and Surgery	x	ANES-2; I-3; PATH-3; PD-2; PR-1; RAD-2; S-3
Osteopathic Hospital, 11th and Harrison Sts., Kansas City, Mo.		
Conley Maternity Hospital, 2105 Independence Ave., Kansas City, Mo.		
Hospitals of Philadelphia College of Osteopathy	x	ANES-6; I-5; OBGS-3; OALR-2; OR-1; PATH-4; PD-2; RAD-5; S-5; US-1
The Hospital of Philadelphia College of Osteopathy, 48th and Spruce Sts., Philadelphia, Pa.		
North Center Hospital of Philadelphia College of Osteopathy, 20th and Susquehanna Ave., Philadelphia, Pa.		
Houston Osteopathic Hospital, 5115 Montrose Blvd., Houston 6, Texas	x	
Humphreys Osteopathic Hospital, Tuscumbia, Mo.		
Hustisford Hospital, Juneau and Ridge Sts., Hustisford, Wis.		
Jackson Osteopathic Hospital, 121 Seymour St., Jackson, Mich.		
Joplin General Hospital, 521 W. Fourth St., Joplin, Mo.		
Juniata Park Medical Center, 1331 E. Wyoming Ave., Philadelphia, Pa.		
Kirksville Osteopathic Hospital, 800 W. Jefferson, Kirksville, Mo.	x	ANES-2; I-3; OALR-2; PATH-2; PD-2; RT-1; S-2
Lakeside Hospital, 29th and Flora, Kansas City 3, Mo.	x	OBGS-1; RAD-1; S-2
Lakeview General Hospital, 80 N. 20th St., Battle Creek, Mich.	x	S-1
Lakeview Hospital, 1749 N. Prospect Ave., Milwaukee 2, Wis.	x	I-1; S-1
Lake Worth Osteopathic Hospital, 6613 Jacksboro Hwy., Fort Worth, Texas		
Lancaster Osteopathic Hospital, 1100 E. Orange St., Lancaster, Pa.	x	ANES-1; I-1; PATH-1; RT-1; S-2
Lansing General Hospital, 2800 Devonshire, Lansing 10, Mich.	x	PATH-1
Lark Ellen Hospital, 845 N. Lark Ellen Ave., West Covina, Calif.		
Las Olas Hospital, 1516 E. Las Olas Blvd., Fort Lauderdale, Fla.		
Laughlin Hospital and Clinic, 711-715 W. Jefferson, Kirksville, Mo.	x	RTD-1; S-2
†*Le Roy Hospital*, 40 E. 61st St., New York 21, N.Y.	x	
Lincoln Park Osteopathic Hospital, 1200 N. 12th St., Grand Junction, Colo.		
Long Beach Osteopathic Hospital-Magnolia Hospital	x	ANES-1; I-1; PATH-1; RTD-1; S-1
Long Beach Osteopathic Hospital, 2776 Pacific Ave., Long Beach 6, Calif.		
Magnolia Hospital, 2101-2115 Magnolia Ave., Long Beach 6, Calif.		

†*Dual staff*

Teaching hospitals are printed in *italics*	Teaching hospitals approved for: Internships	Residencies
Longs Peak Osteopathic Hospital, 500 Ninth Ave., Longmont, Colo.		
Los Angeles County Osteopathic Hospital, 1200 N. State St., Los Angeles 33, Calif.	x	ANES-6; I-14; NNS-4; OBGS-4; OALR-4; OR-4; PATH-5; PD-5; PM-3; RAD-5; S-4; US-3
Lubbock Osteopathic Hospital, 5301 College Ave., Lubbock, Texas		
Madison Street Hospital, 1620 Eighteenth Ave., Seattle 22, Wash.	x	
Mahoning Valley Green Cross Hospital, 1320 Mahoning Ave., N.W., Warren, Ohio	x	
Manning General Hospital, 416 Main St., Manning, Iowa		
Marcom Hospital, 100 Bonham St., Ladonia, Texas		
Margaret Lyle Osteopathic Hospital, 952 Euclid Ave., Benton Harbor, Mich.		
Martin Place Hospital, 58 Martin Place, Detroit 1, Mich.		
Massachusetts Osteopathic Hospital, 222 S. Huntington Ave., Boston 30, Mass.	x	S-1
Maywood Hospital, 4400 E. Slauson Ave., Maywood, Calif.	x	OBG-1
Memorial Hospital, Onekama, Mich.		
Memorial Osteopathic Hospital, 528 Morris Ave., Elizabeth 3, N.J.		
Mesa Memorial Hospital, Tenth and Grand, Grand Junction, Colo.	x	
Metropolitan Hospital, 300 Spruce St., Philadelphia 6, Pa.	x	ANES-2; I-3; ALR-1; PATH-3; PD-1; RAD-2; OBGS-2; S-3; OR-1; US-1
Miles Osteopathic Hospital, 213 E. College St., Grapevine, Texas		
Mineola General Hospital, P.O. Box 248, Mineola, Texas		
Mineral Area Osteopathic Hospital, Route One, Farmington, Mo.	x	
Monte Sano Hospital of Physicians and Surgeons, 2834 Glendale Blvd., Los Angeles 39, Calif.	x	S-1
Mount Clemens General Hospital, 1000 Harrington Blvd., Mount Clemens, Mich.	x	ANES-2; RT-1; I-2; PATH-2; S-2
Mt. Pleasant Hospital and Clinic, 509 N. Madison Ave., Mt. Pleasant, Texas		
Muskegon Osteopathic Hospital, 353 W. Webster Ave., Muskegon, Mich.	x	RTD-1
New Valley Osteopathic Hospital, 3003 Tieton Drive, Yakima, Wash.		
Normandy Osteopathic Hospital, 7840 Natural Bridge Rd., St. Louis 21, Mo.	x	ANES-2; RT-1; S-2
North Jersey Osteopathic General Hospital, 2 E. Quackenbush Ave., Dumont, N.J.		
Northeast Osteopathic Hospital, 620 Bennington Ave., Kansas City 25, Mo.		
Northwest General Osteopathic Hospital, 8741 W. Chicago, Detroit 4, Mich.		
Northwest Hospital, 1060 N.W. 79th St., Miami 50, Fla.	x	
Oklahoma Osteopathic Hospital, 9th and 11th Sts., on Jackson Ave., Tulsa, Okla.	x	I-1; RTD-1; PR-1; S-2
Ontario Community Hospital, 555 N. Campus Ave., Ontario, Calif.	x	
Orlando Osteopathic Hospital, 603 Hillcrest Ave., Orlando, Fla.		
Ormond Beach Hospital, 264 S. Atlantic Ave., Ormond Beach, Fla.		
Osteopathic General Hospital of Rhode Island, 1763 Broad St., Edgewood 5, Cranston, R.I.	x	RTD-1
Osteopathic Hospital of Harrisburg, 1829 N. Front St., Harrisburg, Pa.	x	I-1
Osteopathic Hospital of Maine, 335 Brighton Ave., Portland 4, Maine	x	ANES-1; I-1; PATH-1; RAD-1; S-1
Osteopathic Hospital of Wichita, 3557 E. Douglas, Wichita 8, Kansas		
Ottawa General Hospital, 900 E. Center St., Ottawa, Ill.		
Palmer Osteopathic Hospital, 18160 Woodward Ave., Detroit 3, Mich.		
Palmer Osteopathic Hospital-East, 4535 Cadieux Rd., Detroit 24, Mich.		
Park Avenue Hospital, 1225 N. Park Ave., Pomona, Calif.		
Park Foothills Clinic and Hospital, 8201 Sheridan Rd., El Paso, Texas		
Park View Hospital, 1021 N. Hoover St., Los Angeles 29, Calif.		
Parkview Hospital, 1920 Parkwood Ave., Toledo 2, Ohio	x	RT-1
Phoenix General Hospital, 1950 W. Indian School Rd., Phoenix, Ariz.	x	
Physicians Hospital, 901 Olive Drive, Bakersfield, Calif.		
Plattner Clinic and Osteopathic Hospital, 322 N.E. 8th St., Grand Prairie, Texas		
Point Clinic and Hospital, 512½ Main St., Point Pleasant, W. Va.		
Pontiac Osteopathic Hospital, 50 N. Perry Ave., Pontiac, Mich.	x	OBG-1; RT-1; S-2
Pool Memorial Hospital, 17 W. Chickasaw, Lindsay, Okla.		
Porter Clinic-Hospital, 2401 Nineteenth St., Lubbock, Texas		
Portland Osteopathic Hospital, 2900 E. Steele St., Portland 9, Ore.	x	RTD-1
Redfield Clinic Hospital, Redfield, Iowa		
Reid Hospital and Clinic, 1703 E. Central St., Bethany, Mo.		
Riley Sanatorium, 2514 Riverview Ave., North Muskegon, Mich.		

Teaching hospitals are printed in *italics*	Teaching hospitals approved for: Internships	Residencies
†*Rio Hondo Memorial Hospital*, 8300 Telegraph Rd., Downey, Calif.	x	S-1
Riverside Hospital, Clifton Park Manor, Wilmington 2, Del.	x	ANES-1
Riverside Osteopathic Hospital, 165 George St., Trenton, Mich.	x	ANES-2; RTD-1; I-2; OBG-1; OBGS-1; S-2
Riverside's Osteopathic Hospital, 4295 Brockton Ave., Riverside, Calif.		
Riverview Osteopathic Hospital, 740 Sandy St., Norristown, Pa.	x	ANES-1; RT-1; S-1
Rocky Mountain Osteopathic Hospital, 4701 E. Ninth Ave., Denver 20, Colo.	x	RAD-1; S-1
Saco Osteopathic Hospital, 3 Nott St., Saco, Maine		
Saginaw Osteopathic Hospital, 515 N. Michigan Ave., Saginaw, Mich.	x	ANES-2; RAD-1; S-2
San Antonio Osteopathic Hospital, 210 W. Ashby, San Antonio 2, Texas		
San Gabriel Valley Hospital, 115 E. Broadway, San Gabriel, Calif.	x	
Sandusky Hospital - Clinic, 47 Austin St., Sandusky, Mich.		
Sandusky Memorial Hospital, 2020 Hayes Ave., Sandusky, Ohio	x	
Selby General Hospital, 304 Putnam St., Marietta, Ohio	x	
Sheridan Community Hospital, 301 N. Main St., Sheridan, Mich.		
Sierra Hospital, 2025 E. Dakota, Fresno, Calif.		
South Bend Osteopathic Hospital, 2515 E. Jefferson Blvd., South Bend 1, Ind.	x	RT-1
Standring Memorial Osteopathic Hospital, 12845 - 12th Ave., S.W., Seattle 66, Wash.	x	
Stevens Park Osteopathic Hospital, 1141 N. Hampton Rd., Dallas 8, Texas	x	S-1
Still-Hildreth Osteopathic Sanatorium, Macon, Mo.		
Still Osteopathic Hospital, 725 Sixth Ave., Des Moine 9, Iowa	x	RTD-1; I-2; OBG-1; PD-1; S-1
Stocker Hospital and Clinic, 1005 N. Lake Rd., Oconomowoc, Wis.		
Stratton Hospital and Clinic, 306-308 E. Broadway, Cuero, Texas		
Sun Coast Osteopathic Hospital, 2025 Indian Rocks Rd., Largo, Fla.		
Talco Hospital and Clinic, 4th and Lillianstern Sts., Talco, Texas		
Tavel Clinic and Hospital, 4809 Austin St., Houston 4, Texas		
Tiqua General Hospital, 7722 N. Loop Rd., El Paso, Texas		
Traverse City Osteopathic Hospital, 625 Bay St., Traverse City, Mich.	x	
Trenton Osteopathic Hospital, 200 High St., Trenton, Tenn.		
Troy Community Hospital, 100 John St., Troy, Pa.		
Tucson General Hospital, 3838 N. Campbell Ave., Tucson, Ariz.	x	
Victory Hospital, 6421 Coldwater Canyon, N. Hollywood, Calif.	x	
Vowell Maternity Hospital, 701 S. Campbell St., El Paso, Texas		
Waldo General Hospital, 8511 Fifteenth Ave., N.E., Seattle 15, Wash.	x	
Warren General Hospital, 667 Eastland Ave., S.E., Warren, Ohio	x	
Waterville Osteopathic Hospital, 85 Western Ave., Waterville, Maine	x	
Wellsburg Eye and Ear Hospital, 1006 Commerce St., Wellsburg, W. Va.		
West Allegheny Hospital, Lincoln Highway, Oakdale, Pa.		
West Broward Hospital and Clinic, 1101 W. Broward Blvd., Fort Lauderdale, Fla.		
West Side Osteopathic Hospital of York, 1253 W. Market St., York, Pa.	x	I-2; RAD-2; OR-1; S-2
Wetzel Osteopathic Hospital, 1302-04 N. Main St., Carrollton, Mo.		
Wetzel Osteopathic Hospital, 105 E. Ohio St., Clinton, Mo.	x	S-1
Whitaker Osteopathic Hospital, 205 S. Fifth St., Moberly, Mo.		
Wilden Osteopathic Hospital, 1347 Capitol, Des Moines 16, Iowa	x	RTD-1; I-1; S-1
Wolfe City Hospital, Jones St., Wolfe City, Texas		
Wolfe-Duphorne Hospital, 108 S. Pinkerton, Athens, Texas		
Yale Clinic and Hospital, 510 W. Hamilton, Houston 18, Texas		
Zieger Osteopathic Hospital, 4244 Livernois Ave., Detroit 10, Mich.	x	ANES-1; I-2; OBG-3; PATH-1; RT-2; S-2

ALR	Otolaryngology or Otorhinolaryngology	OBG	Obstetrics and Gynecology	RAD	Radiology
ANES	Anesthesiology	OBGS	Obstetrical-Gynecological Surgery	RT	Roentgenology
I	Internal Medicine	OPH	Ophthalmology	RTD	Roentgenology (Diagnostic)
N	Neurology	OR	Orthopedic Surgery	S	Surgery (General)
NS	Neurosurgery	PATH	Pathology	US	Urological Surgery
OALR	Ophthalmology and Otolaryngology or Ophthalmology and Otorhinolaryngology	PD	Pediatrics		
		PM	Physical Medicine and Rehabilitation		
		PR	Proctology		

Dates of 1961 first-year student matriculation

Chicago College of Osteopathy 1122 East 53rd Street, Chicago 15, Illinois	September 25
College of Osteopathic Medicine and Surgery 720 Sixth Avenue, Des Moines 9, Iowa	September 6
College of Osteopathic Physicians and Surgeons 1721 Griffin Avenue, Los Angeles 31, California	September 11
Kansas City College of Osteopathy and Surgery 2105 Independence Avenue, Kansas City 24, Missouri	September 11
Kirksville College of Osteopathy and Surgery Kirksville, Missouri	September 11
Philadelphia College of Osteopathy Spruce Street at 48th, Philadelphia 39, Pennsylvania	September 12

This section is published monthly to inform the practicing physician about new drug products and medical equipment made available on the market. It is a reference section prepared by THE JOURNAL *from descriptive material furnished by ethical manufacturers. The American Osteopathic Association does not necessarily advocate the use of these products nor disapprove any product not included. The purpose of the section is to provide trustworthy information in a convenient form.*

NEW PRODUCTS

FERROMALT

Chemistry • Ferromalt combines oral ferrous sulfate with a non-diastatic barley malt extract neutralized with potassium carbonate. Each enteric-coated tablet contains 195 mg. ferrous sulfate, 0.5 mg. copper sulfate, and 150 mg. malt soup extract.

Pharmacodynamics • Ferromalt tablets supply iron and copper in a therapeutically effective dose for rapid hemoglobin response, dispersed in a malt soup extract base which maintains an aciduric intestinal flora and helps prevent intestinal irritability due to iron. The enteric coating prevents gastric irritation. Clinical studies have indicated that the compound provides a prompt hemopoietic response at a comparatively low dosage and is well tolerated by patients unable to take other types of oral iron compounds. The malt base apparently improves absorption in the gastrointestinal tract and promotes normal bowel function.

Toxicoloy • No side effects have been reported with the usual clinical dosage.

Indications • Ferromalt is indicated for hypochromic anemia resulting from duodenal ulcer, ulcerative colitis, pregnancy, pernicious anemia, advanced age, post-infectious states, malnutrition, menstrual hemorrhage, metrorrhagia, and post-surgical states.

Dosage schedule • The usual dosage is 1 tablet three or four times daily, and the dosage may be increased to 6 tablets daily if necessary.

How supplied • Bottles of 100. Ferromalt tablets provide 3.9 times the Minimum Daily Requirement of iron for adults.

Manufacturer • Borcherdt Company, 217 N. Wolcott Avenue, Chicago 12, Illinois.

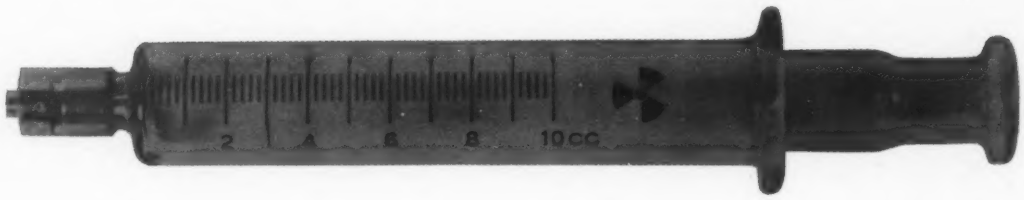
References • Hootnick, H. L., J. Am. Ger. Soc. 4:1021, 1956. Hootnick, H. L., Clin. Med. 7:511, 1960.

IDENTIFICATION FOR RADIOISOTOPE INSTRUMENTS

Description • The standard cloverleaf radioisotope warning symbol, shown here on a Multifit Syringe, is now being supplied on special order by Becton, Dickinson and Company on injection equipment intended for radioisotope studies and treatment. The permanent symbol is also available on Steritube Needle Containers and Vacutainer Evacuated Blood Specimen Tubes. The symbol is applied by the company's regular, permanent stain mark process. This permanent identification facilitates radioisotope studies and treatment and ensures that any injection equipment used will not be confused with other hospital supplies.

How supplied • The radioisotope warning symbol is now available on radioisotope Syringes 2ML, 5ML, 10ML, 20ML; Vacutainer Evacuated Blood Specimen Tubes 3200, 3204, 3208; Steritube Needle Container #405.

Manufacturer • Becton, Dickinson and Company, Rutherford, New Jersey.



LOMOTIL®

Chemistry • Lomotil is a brand of diphenoxylate hydrochloride, 2,2-diphenyl-4-(4-carbethoxy-4-phenyl-1-piperidino)butyronitrile hydrochloride. Atropine sulfate in a subtherapeutic amount is included in the drug.

Pharmacodynamics • Lomotil inhibits excessive gastrointestinal propulsion. Investigators have noted that while there is no demonstrable delay in gastric emptying after the administration of Lomotil, the transit time through the small intestine is definitely increased. The drug's mode of action appears to involve an effect on the sphincter of Oddi typical of the effect of narcotic drugs; it is considered that the action of Lomotil on the smooth muscle of the intestinal tract is similar to that of morphine. Although the drug structurally resembles some narcotic drugs, it exerts essentially no analgesia, and no evidence of addiction has been reported in clinical use at the recommended dosage. The subtherapeutic amount of atropine sulfate (0.025 mg.) in each tablet has been added simply to discourage deliberate overdosage.

Toxicology • Side effects incidental to Lomotil administration appear to be relatively uncommon; a few patients have reported nausea, drowsiness, dizziness, and/or skin eruption. Toxicity studies in laboratory animals have demonstrated the relative safety of the drug; a dosage roughly 144 times the human adult therapeutic dose was required to produce any toxic effects.

Indications • Lomotil is useful in acute or chronic diarrhea associated with gastroenteritis, irritable bowel, functional hypermotility, regional enteritis, malabsorption syndrome, drugs, acute infections, ulcerative colitis, and food poisoning.

Contraindications • Lomotil should be used with caution, if it is not absolutely contraindicated, in patients with cirrhosis or advanced liver disease and in patients who are receiving barbiturates or other addicting drugs.

Dosage schedule • For adults the usual dose initially is 2 tablets (5 mg.) three or four times daily, with the maintenance dosage determined individually thereafter. For children the dosage is determined by age, ranging from 3 mg. daily for a child of 3 to 6 months to 10 mg. daily for the child 8 to 12 years old. The drug is subject to the Federal Narcotic Law.

How supplied • Tablets, 2.5 mg., unscored, uncoated, white, in bottles of 100.

Manufacturer • G. D. Searle & Company, P.O. Box 5110, Chicago 80, Illinois.

References • Van Dorstappen, G., Vantrappen, G., and Vandenbroucke, J., long-term clinical studies to be published. Fraser, H. F., and Isbell, H., pharmacologic studies to be published. Clinical reports from various qualified investigators are available to physicians through the Division of Clinical Research, G. D. Searle & Company.

NACLEX®

Chemistry • NaClex is a brand of benzthiazide, chemically known as 3-benzylthiomethyl-6-chloro-7-sulfamyl-1,2,4-benzothiadiazine-1,1-dioxide. Benzthiazide is a white, crystalline compound insoluble in water but readily soluble in alkaline solution. It is odorless and has a bitter taste.

Pharmacodynamics • NaClex is a new and highly potent nonmercurial diuretic agent, effective orally in relieving edematous states. Apparently functioning primarily in the proximal renal tubules, NaClex limits the reabsorption of sodium and chloride. The increased excretion of these ions leads to the reduction of excessive extracellular fluid. Diuresis with NaClex provides an increase in the concentration of sodium and chloride in the urine as well as an increase in the total amount of salt and water removed. The drug also has a relative sparing effect on potassium. NaClex is mildly antihypertensive in its own right and enhances the action of other antihypertensive drugs when used with them. Clinically NaClex results in diuretic activity within 2 hours, maintaining the response for 12 to 18 hours. The maximal natriuretic, chloruretic, and diuretic effects occur during the fourth to sixth hours. NaClex may be effective in cases unresponsive to mercurial agents, and may frequently eliminate the need for parenteral mercurials.

Toxicology • Side effects to NaClex are infrequent and usually not severe. Most can be overcome by adjusting the electrolyte balance

through dietary supplement, lowering the dose, or administering the drug after meals. Nausea, anorexia, and headache have been reported, and rare instances of hyperuricemia, leukopenia, and rash. Careful appraisal is always necessary to ascertain whether adverse symptoms and electrolyte disturbances are arising from therapy or from a progression of the underlying disease. As with all diuretics, if progressive renal impairment becomes evident, as indicated by a rising nonprotein nitrogen or blood urea nitrogen level, a careful reappraisal of therapy is necessary with consideration given to withholding or discontinuing diuretic therapy.

Indications • NaClex produces diuresis, weight loss, and symptomatic improvement in edema associated with conditions such as congestive heart failure, cirrhosis of the liver, chronic renal diseases (including nephrosis), premenstrual tension, toxemia of pregnancy, and obesity. Edema of local origin and edema caused by steroid administration may also be benefited. NaClex may be used alone in mild hypertension or in association with other drugs in severe cases, permitting lower dosage levels of other hypertensive agents.

Contraindications • In general, the precautions which apply to NaClex are those applying to other thiazide diuretics. The patient must be observed regularly for signs of hypokalemia, particularly when digitalis or corticosteroids are being administered concurrently. Potassium supplements should always accompany NaClex therapy in patients with cirrhosis and ascites. Hypochloremic alkalosis and hyponatremia are likely to occur when vigorous diuretic therapy is combined with rigid salt restriction, but these complications can be readily corrected. As with other diuretic agents, patients must be watched for early signs of fluid or electrolyte imbalance. When NaClex is being added to an antihypertensive regimen, it is mandatory to reduce the dosage of hydralazine or the ganglion-blockers by at least 50 per cent. In such cases the dosage for both diuretic and antihypertensive agents must be carefully individualized.

Dosage schedule • Hypertension: The initial dose is 25 to 50 mg. twice a day, after breakfast and after lunch; after a therapeutic drop in blood pressure occurs the dose is adjusted to the patient's response. Edema: The initial dose is 50 to 200 mg. daily until dry weight is achieved; with 100 mg. or more daily, NaClex is usually best administered in two doses, after morning and evening meals. Reduction to minimal effective dosage should be gradual. Premenstrual tension: 25 to 50 mg. once or twice daily, beginning with first morning symptoms or 5 to 7 days before the period, and continuing until onset of menses. Obesity: 25 to 50 mg. once or twice daily may be of value in producing initial loss of fluid.

How supplied • NaClex is available in yellow, scored, compressed tablets of benzthiazide 50 mg., in bottles of 100 and 500.

Manufacturer • A. H. Robins Company, Incorporated, 1407 Cummings Drive, Richmond 20, Virginia.

References • Pitts, R. F., Am. J. Med. 24:745, 1958. Ford, R. V. Cur. Therap. Res. 2:51, 1960.

AZO-MANDELAMINE®

Chemistry • Azo-Mandelamine combines phenylazo-diamino-pyridine HCl (Pyridium) and methenamine mandelate (Mandelamine) in enteric-coated tablets.

Pharmacodynamics • Pyridium is a urinary tract analgesic, and Mandelamine is a urinary antibacterial agent. The combination, Azo-Mandelamine, is effective against most urinary tract pathogens, including many strains resistant to antibiotics and sulfonamides, and also relieves the dysuria associated with urinary tract infections. In its physiologic action, Mandelamine is converted into its two components, methenamine and mandelic acid, both of which exert antibacterial effects in the urinary tract. Mandelic acid, excreted unchanged in the urine, increases urine acidity; both acid urine and the mandelic acid molecule in an acid medium have a bacterial inhibitory effect. When methenamine reaches acid urine, it is hydrolyzed to formaldehyde, providing an antibacterial concentration of formaldehyde in the urine. For maximum antibacterial effectiveness a urine pH of 5.5 or lower should be maintained. The analgesic action of Pyridium is specific and limited to the urogenital mucosa, providing prompt relief of pain, burning, urgency, and frequency which accompany many infections of the lower urinary tract.

Toxicology • In clinical usage Azo-Mandelamine is reported to be virtually without toxicity or untoward side effects.

Indications • Azo-Mandelamine is particularly indicated for the common lower urinary tract infections usually associated with dysuria: cystitis, prostatitis, nonspecific urethritis, bladder calculi, and other irritative conditions of the bladder and prostatic area. The drug is also useful following bladder or prostate operations because it relieves urogenital discomfort and provides the prophylactic value of an antibacterially active urine. In prophylactic treatment before and after instrument procedures such as catheterization and cystoscopy, Azo-Mandelamine reduces the risk of introducing infection and also relieves the irritation and discomfort associated with such procedures.

Contraindications • Azo-Mandelamine is contraindicated in renal insufficiency, uremia, severe hepatitis, and in pyelonephritis of pregnancy associated with gastrointestinal disturbance.

Dosage schedule • For adults the dose is 2 tablets four times daily; for children weighing over 60 pounds, 1 tablet per 15 pounds body weight per day, in divided doses. Supplemental acidification, restriction of fluids, alkali therapy, dietary control, or other special measures, are not required. If the infection is caused by a urea-splitting organism, however, the use of an acidifying agent for 24 to 36 hours will facilitate maintenance of urine acidity.

How supplied • In bottles of 100 enteric-coated tablets, each containing 50 mg. Pyridium and 500 mg. Mandelamine.

Manufacturer • Warner-Chilcott Laboratories, Morris Plains, New Jersey.

MATURON

Chemistry • Maturon combines enzymes, lipotropes, vitamins, and minerals in a comprehensive formula designed to aid digestion and fortify the diet.

Pharmacodynamics • In Maturon, the supplementary digestive enzymes provide the following actions: Amylase splits starches, supplementing ptyalin produced by the saliva as well as the pancreatic enzyme amylopsin. Amylase is effective in a pH range of 4.0 to 8.5 and works rapidly; the amylase content in one Maturon tablet can convert 30 grams of starch in 1 hour. Protease digests proteins, working throughout the alimentary tract. In the stomach, protease adds to the proteolytic activity of pepsin under normal acid conditions and supplements it when pepsin activity is impaired by achlorhydria. The protease content in one Maturon tablet is capable of digesting 120 grams of egg albumin in 1 hour. The tryptic activity supplies additional protein breakdown, supplementing the action of pancreatic trypsin on proteins; the tryptic activity in one Maturon tablet can digest 5 grams of casein in 1 hour. Bile salts and lipotropes in the formula aid in the emulsification and absorption of fats. The full complement of essential vitamins and minerals tends to restore under-nutrition to normal and to provide optimal maintenance support.

In addition to insuring optimum utilization of dietary intake, Maturon protects against flatulence, heartburn, indigestion, and similar complaints arising from faulty digestion of starches, proteins, and fats, whether the basic condition is a functional disturbance, disease, or declining enzymatic secretion characteristic of advancing maturity.

Indications • Maturon is indicated in gastrointestinal disorders such as gastritis and nervous indigestion, and as a safeguard against flatulence and distention. It is useful as a nutritional aid in coronary artery disease, hypertension, and other conditions that tend to interfere with digestion and promote vitamin loss. It offsets the elderly patient's preference for a high-starch diet, as well as the reduction of enzymatic secretion due to diminishing digestive capacity, inadequate mastication, and low salivation. It meets the increased nutritional requirements of convalescent or debilitated patients.

Dosage schedule • The usual dose is 1 tablet with meals, or as directed by the physician.

How supplied • Maturon Tablets, No. 799, bottles of 100 and 1,000.

Manufacturer • Ayerst Laboratories, New York 16, New York.

CURRENT LITERATURE

Radiation accidents

▶ Highlights from a forthcoming handbook on medical aspects of radiation accidents are summarized by Eugene L. Saenger, M.D., in *The American Journal of Roentgenology, Radium Therapy, and Nuclear Medicine,* October 1960. The cooperative study leading to the preparation of the handbook grew out of an accident in Cincinnati in 1951, when 50 mg. of radium was spilled. A review of the situation showed that lost motion and procedural errors were much in evidence, due largely to the lack of a pre-existing plan. To guide in the forming of suitable emergency programs, a review was made of the wealth of information that has been published since about 1952. A summary of the experience of the Atomic Energy Commission is included in this report.

Radiation accident is defined as an unforeseen occurrence, either actual or suspected, involving exposure to radiation, and contamination on or within humans and their environment. An accident is considered to involve a time period of seconds to days; long-term or chronic exposures are not considered. Within the two basic types of accident —exposure to external radiation and contamination by radioactive materials—the kinds of accidents that happen can be quite varied. A system containing fissionable material becomes critical when the number of neutrons produced in the system equals those lost by leakage and capture. If conditions of self-sustained criticality are exceeded, a chain reaction will occur, producing quantities of fast neutrons and gamma rays. Reactors may also release large quantities of radionuclides. Contamination is the major problem associated with fuel element manufacture. In fuel element reprocessing the external hazard becomes significant. Sealed sources are an external hazard only, but all sources can leak under certain conditions. With particle accelerators the radioisotope hazard is produced by the targets or other components irradiated by neutrons or other particles. In most accidents there have been human mistakes, and once the accident cycle has begun, many human beings panic and behave irrationally. An emergency plan should anticipate such behavior and its consequences as well as guarding against all possible accidents for the radiation sources used. The operating personnel should then be disciplined in activating the plan. One specific procedure is illustrated in this article.

The proper care of victims of radiation accident depends mostly on an understanding of the acute radiation syndrome. Unfortunately there is no way to estimate accurately the radiation dose received; film badges and personnel dosimeters may be too sensitive for the high doses encountered. The radiation produced may include gamma rays, neutrons, and alpha and beta particles; also, when an exposed individual is close to an extended source the relative biologic effectiveness of the radiations cannot be determined. A dose due to neutrons can be estimated, however, by calculations based on the assay of radioactive sodium resulting from the interaction of neutrons with stable sodium in the body. If area monitors are in use, the determination of dose becomes more accurate. The parameters that should be investigated for this purpose are listed by the author. The clinical manifestations of the acute radiation syndrome are divided into four stages: initial or prodromal (8 to 48 hours), latent (2 to 3 weeks), manifest illness (2 to 6 weeks), and recovery (8 to 15 weeks). The prodromal findings include anorexia, nausea, vomiting, extreme sweating, fatigue, and prostration; when diarrhea occurs it is a serious sign. During the latent stage the symptoms are replaced by a feeling of well-being, which is abruptly terminated after about 18 days by manifest illness. The course of the syndrome, however, varies according to dose received, the clinical manifestations ranging through asymptomatic, mild, serious, accelerated, and fulminating. Laboratory studies should be organized so as to yield the maximum information with the least discomfort for the patient. Of the many useful hematologic studies, the peripheral blood count remains the most valuable test for indicating radiation injury and following its course. The whole-body counter also is useful for determining radioactivity of an exposed individual.

Therapy in the acute radiation syndrome remains supportive, with specific treatments added as indicated for various complications. In any case, hospitalization is usually advisable for close observation of the patient. There have been interesting developments in the attempt to mobilize certain radionuclides fixed in the body. It was found that the chelating agent calcium disodium ethylene dia-

mine tetra-acetic acid (EDTA) increased excretion of plutonium and other radionuclides by factors of 6 to 10. Recently a new agent, trisodium calcium diethylene-triamine pentacetic acid (DPTA), has been found to increase urinary excretion by factors of 45 to 120. The chelating agents appear to be highly effective in treating radiation syndrome, but it must be remembered that they can produce toxic nephrosis.

Brucellosis of the bones and joints

► Experience with 36 patients indicated that aggressive surgical treatment is usually required for brucellosis of the bones and joints, according to a study reported in *The Journal of the American Medical Association,* September 24, 1960, by Patrick J. Kelly, M.D., William J. Martin, M.D., Alexander Schirger, M.D., and Lyle A. Weed, M.D. The disease primarily affects men in occupations related to animal husbandry, and perhaps in no other orthopedic infection is a careful occupational history so important. There are no diagnostic criteria other than those related to serologic or cultural methods. Among the 36 cases reviewed, the diagnosis was based on culture of brucella organisms in 22, and on serologic evidence alone in 14. Culture materials should include tissue as well as fluid. Of the patients with culturally proved skeletal brucellosis the agglutination titers of serum often were low or absent. Brucella suis and Brucella abortus were the strains most commonly isolated from skeletal lesions.

The one exception to the requirement for surgical treatment is brucellar spondylitis, which usually responds to rest and the use of braces or casts together with combined tetracycline-streptomycin therapy. Joints and bursae respond well to excision of the synovial tissue and therapy with antibiotic combinations. Brucellar osteomyelitis requires wide drainage, saucerization, and care to prevent secondary pyogenic infection. Osteomyelitis is the hardest of all the lesions to treat successfully; a combination of tetracycline and streptomycin brought satisfactory results in such cases in this series.

The effect of nylidrin hydrochloride (Arlidin) on the cerebral circulation

► A study indicating that oral administration of nylidrin hydrochloride (Arlidin) is associated with increased cerebral blood flow is reported by Seymour Eisenberg, M.D., in *The American Journal of the Medical Sciences,* July 1960. The study was not designed to evaluate the clinical effectiveness of Arlidin in persons with cerebral vascular disease. As a matter of fact, it has not been clearly established that increased cerebral flow offers any therapeutic benefits to such patients. There was some evidence in the author's study that treated patients with recent cerebral infarctions and limited neurologic deficits seemed to reach a clinical plateau more rapidly than untreated subjects. However, there also emerged the distinct impression that major functional deficits are not affected by increasing cerebral perfusion.

In the cases comprising this series, the oral administration of nylidrin hydrochloride for more than 2 weeks was associated with a 43 per cent increase in cerebral blood flow; over shorter periods, the effect was inconsistent. The increase in cerebral perfusion was associated with a decrease in cerebral vascular resistance and often a slight decline in mean arterial blood pressure. The results occurred in the absence of consistent changes in pCO_2 or pH, suggesting a primary cardiovascular effect of the drug, which could represent either a direct effect on cerebral blood vessels or an increase in cardiac output. The failure of nylidrin to induce significant vasodilation in certain subjects was considered evidence that severely sclerotic blood vessels are incapable of dilation. When vascular dilation can take place, however, the effect might be quite advantageous, as for example in preventing transient episodes of cerebral ischemia and possibly even ultimate infarction.

Efficacy of a bath oil in the management of dry skin

► The effects of daily use of a water-dispersible bath oil are reported by Gustav Weissberg, M.D., in *Clinical Medicine,* June 1960. Among the 118 cases in the series, the skin disorders included senile skin, dry skin due to constitutional changes, actinic changes, ichthyosis, and atopic dermatitis. The treatment proved beneficial whether the dry skin was primary or secondary to a dermatosis; over 90 per cent of the patients considered the routine bath treatment an easy and highly acceptable method of lubricating the entire skin. The author states that uncomplicated xeroderma with pruritus is greatly relieved by this modality alone; associated skin diseases require standard dermatologic therapy in addition to the soothing oil bath.

Skin lipids play a role in keeping water loss at a minimum in normal skin by forming a water-in-oil emulsion in the upper layers of the epidermis. When the skin lipids are reduced for any reason, evaporation from the skin is increased, and the superficial layers of the epidermis peel off more readily, reducing further the capacity of the skin to retain water. The bath oil used in the study (Sardo) leaves an invisible film of oil which clings to the skin and is not easily rubbed off. The film assumes the role of the natural skin lipids, rendering the skin less vulnerable to actinic, thermal, and mechanical injuries. In order to test the effect of the oil in 78 cases of skin disease being treated with other agents such as hydrocortisone cream and

superficial x-ray, the oil baths were discontinued for stated periods and then reinstituted, while dermatologic therapy continued. In 59 of these cases it was apparent that the oil baths helped to control the disease itself, as well as relieving skin dryness. Patients with chronic irreversible skin conditions were greatly benefited even though the primary condition was not altered; patients with acute inflammatory dermatoses were in many instances benefited more by the bath oil than by the customary dermatologic bath additives. The addition of oil to the therapeutic bath prevented the skin-drying commonly seen in hydrotherapy. While the oil bath is not a cure for dry skin, its daily use keeps the skin in near-normal condition, heals fissures and scratches, and prevents recurrence.

Symposium on surgical treatment of extracranial occlusive cerebrovascular disease

▶ A symposium on cerebrovascular disease published in the *Proceedings of the Staff Meetings of The Mayo Clinic,* August 17, 1960, includes the following papers: Diagnosis and Classification of Focal Ischemic Cerebrovascular Disease, by Robert G. Siekert, M.D.; Selection of Patients for Arteriography and Surgical Treatment, by Jack P. Whisnant, M.D.; Cerebral Arteriography: Technics and Results, by Hillier L. Baker, Jr., M.D.; Surgical Technics, by Philip E. Bernatz, M.D.; and Results of Surgical Treatment, by F. Henry Ellis, Jr., M.D. The concluding remarks by Clark H. Millikan, M.D., summarize the salient points covered.

A dynamic temporal classification is suggested which is based on the clinical status of the patient when the physician first sees him, and which should materially aid in the problem of devising effective treatment for patients with occlusive cerebrovascular disease. Although arteriographic studies are not needed for diagnosis, they are sometimes indicated after diagnosis, to determine the extent and location of the arterial lesion. The routine use of arteriography bypasses time-consuming examination and history-taking, but results in the performance of many unnecessary and perhaps dangerous arteriograms. The primary goal of surgical treatment is prophylaxis—even the most dazzling procedure may not in any way benefit the patient's brain function, if there exists no reasonable chance of preventing infarction or extension of infarction. Long-term follow-up studies are necessary before the role of cerebral vascular surgery can be assessed. A meticulous study made to detect and assess complications associated with arteriography indicated that such complications are associated with direct injection of a diseased vessel, and all cases of persistent complications followed upon injection of the left common carotid artery. Manipulation of the vessel, rather than the flow of dye, may be the important factor in the production of complications.

Depressed fractures of the tibial plateau

▶ A preliminary report on the treatment of tibial fractures by means of rigid internal fixation and early mobilization is presented by Charles Rombold, M.D., in *The Journal of Bone and Joint Surgery,* July 1960. The results of the author's study indicate that the converting of an unstable fracture of the tibial plateau to a stable status by competent internal fixation permits early movement of the knee and contributes to improved functional and anatomic results. Since none of the 15 patients so treated have been followed longer than 6½ years, the author warns that the report should not be considered as an end-result study. Conservative treatment of every degree has been advocated for these difficult fractures, but some authors have advocated a more radical approach; however, no end-result study of fractures of the tibial plateau treated by internal fixation and immediate mobilization of the knee has yet been reported.

The 15 cases in this series represented severe fracture resulting in significant deformity. The general principles guiding treatment were to restore the normal plane of the tibial articular surface perpendicular to the weight-bearing line, to maintain the reduction by strong and rigid coaptive and longitudinal internal fixation, to assure eventual osseous support of the elevated plateau fragments by filling any residual cavities with bone grafts, and to institute knee motion immediately after operation. The operation is comparatively difficult, since the actual damage to the plateaus is usually much greater than indicated by roentgenograms. Sometimes it is necessary to reinforce the condyle with a horizontal metal support. The diversity and complexity of these fractures, however, preclude standardization of the operative technic, and the surgeon must be prepared to modify the procedure according to the situation.

The results indicate that early mobilization of the knee is as important in the end result as the reduction of the fracture; good function may result even though roentgenograms show poor reduction. Although there was no positive effort to protect the ligaments, instability was not a significant result, and it was thought that either the ligaments healed adequately despite knee motion or the minor instabilities from inadequate healing were not troublesome.

Knee pain due to saphenous-nerve entrapment

▶ Two cases of saphenous-nerve entrapment in which surgical intervention was necessary are described by H. P. Kopell, M.D., and W. A. L. Thompson, M.D., in *The New England Journal of Medicine,* August 18, 1960. Extrinsic sources of knee pain may exist in the musculoskeletal system or they may be of neurologic origin. Irritation of

the nerve roots that supply the knee may seem to place the origin of the disturbed sensation at the knee. One neurogenic extrinsic source of knee pain which is often overlooked is mechanical irritation of the saphenous nerve in the thigh. The point where this nerve emerges through the subsartorial fascia is the region of mechanical vulnerability, and irritation here will cause pain in the knee and down the medial aspect of the leg. The nerve trunk distal to this point is usually tender. The tenderness of a fine branch passing between the two parts of the medial collateral ligament may seem to indicate inflammation of that structure. As in other entrapment situations, rest pain may be severe and perhaps the most outstanding feature.

In the 2 cases described, there was no history of direct trauma to the entrapment area. The chief diagnostic problem was the differentiation of this entity from medial collateral ligament inflammation or an occult meniscal injury; these are readily suggested by the severity of pain, tenderness at the medial aspect of the joint, and painful limitation of motion. The final diagnosis was suggested by nerve tenderness at its point of exit from the subsartorial canal, the sensory disturbance in its area of innervation, and the response to nerve block with hydrocortisone. Because the symptoms consistently recurred several days after nerve block, exploration of the saphenous nerve was decided upon, and in both cases surgical release of the nerve brought complete relief. It is noted, however, that surgical intervention is not advocated as the sole method of treatment.

Significant postmenopausal endometriosis

▶ Contrary to general belief, endometriosis can be clinically important after the menopause, according to a report by Roger D. Kempers, M.D., Malcolm B. Dockerty, M.D., Arthur B. Hunt, M.D., and Richard E. Symmonds, M.D., in *Surgery, Gynecology & Obstetrics*, September 1960. Endometriosis is seldom diagnosed clinically in postmenopausal women because it has been assumed that the endometriotic process in older patients undergoes atrophy so that the clinical symptoms gradually fade away. A casual review of Mayo Clinic files, however, disclosed enough cases of symptomatic postmenopausal endometriosis to suggest an investigation of this condition with particular attention to cases in which the growth was considered significant. Of 136 cases of external endometriosis established grossly or microscopically, clinically significant growth was present in 18 per cent. If the cases of chocolate cyst which could not be verified as endometriosis are added, the incidence reaches 29 per cent.

The commonest site of significant postmenopausal endometriosis was the ovary; second came the intestine. A relatively large number of patients with intestinal endometriosis had previously undergone pelvic operations. The diagnosis of endometriosis was made preoperatively in only 2 of the patients who had significant disease. Castration was the principal form of definitive surgical management, with conservative management of involved intestine when possible. About one fifth of the patients with clinically significant and histologically proved postmenopausal endometriosis exhibited histologic evidence of cellular activity in the ectopic foci. None of these patients showed symptoms of endometriosis. Many foci of insignificant ectopic endometrium also continue to show some histologic activity after the menopause. Endometriosis was found on the posterior uterine serosal surface in 7 of 50 consecutive necropsies on postmenopausal women. Inactive and clinically insignificant endometriosis often is not identified grossly as such.

Gastrointestinal bleeding with cirrhosis

▶ A study of 172 episodes of gastrointestinal bleeding in 158 patients is reported by Thomas C. Merigan, Jr., M.D., Robert M. Hollister, M.D., Paul F. Gryska, M.D., George W. B. Starkey, M.D., and Charles S. Davidson, M.D., in *The New England Journal of Medicine*, September 22, 1960. The problems especially considered were: the course of the patient with or without operation, the relative merits of the common diagnostic procedures, and the complications encountered with use of the balloon-tube tamponade.

Of the 158 patients, 110 were male and 48 female; 142 were known to have had a moderate to heavy intake of alcohol. Analysis of the records in these cases indicated that there is a relation between the degree of hepatic compensation, site of bleeding, severity of bleeding, and mortality. In cases involving acute hepatic decompensation, bleeding was more severe and more frequently from esophageal or gastric varices, and mortality was higher, than in cases of bleeding without hepatic decompensation. Patients in the latter group have a better prognosis than the former regardless of therapy. Comparative analysis of diagnostic technics revealed esophagoscopy to be more dependable and accurate than either balloon-tube tamponade or upper gastrointestinal examination. The numerous complications of esophageal tamponade procedures may include pneumonia, esophageal erosion and ulceration, acute aspiration, cardiac arrhythmias, and pulmonary edema.

It is believed that material improvement in morbidity or mortality among such patients will result from early treatment of bleeding, hepatic coma, and infection, early and accurate identification of the bleeding site, early decision regarding the feasibility of operation and early operation when possible, and reduction in the duration and amount of traction applied in balloon-tube tamponade.

BOOK REVIEWS

► *Books for review which were received during the period from November 5 to December 5 are listed on advertising page A-173. Reviews of these books will be published as space permits.*

► LEUKAEMIA. Research and Clinical Practice. By F. G. J. Hayhoe, M.A., M.D. (Cantab.), M.R.C.P. (Lond.), Lecturer in Medicine, University of Cambridge, Honorary Physician, The United Cambridge Hospitals. Cloth. Pp. 335, with illustrations. Price $16.00. Little, Brown and Company, 34 Beacon Street, Boston 6, 1960.

This book follows a general outline of four major subdivisions. In the first section, historical data are reviewed, followed by a discussion of incidence, classification, and etiology of leukemia. The huge literature relating to these features of leukemia is carefully analyzed, and salient points are organized in a very readable manner.

The second section relates to the leukemic cell. The morphology and chemistry of leukemic cells are thoroughly discussed; the pertinent literature is reviewed and integrated. An interesting feature is the use of plates, primarily in color, illustrating the histochemical staining reactions commonly employed in the study of blood cells. The sections discussing staining reactions are lucid, and they present the significant findings of recent years in a concise manner.

The therapeutic modalities employed in the treatment of leukemia are reviewed in the third section. The discussions of chemotherapy, transfusion, and radiotherapy are sufficiently complete without being verbose.

The clinical aspects of the acute and chronic leukemias are well presented; illustrative cases are reviewed in these chapters. The last chapter in the book relative to the nature and nosology of leukemia is perhaps one of the more stimulating chapters in that it presents a very readable discussion of the possible relationship of leukemia to marrow aplasia and the myeloproliferative disorders.

The format of the book is good; the use of non-reflective paper is always to be commended. This book can be highly recommended to those persons interested in the research and clinical aspects of leukemia, and it is a welcome addition to the hematology literature.

SIDNEY J. KATZ, D.O.

► EMOTIONAL FORCES IN THE FAMILY. Edited by Samuel Liebman, M.D., Medical Director, North Shore Hospital, Winnetka, Illinois; Clinical Assistant Professor of Psychiatry, University of Illinois College of Medicine. Cloth. Pp. 157. Price $5.00. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1959.

This is another easy-to-read book edited by Samuel Liebman. It begins with a thought-provoking chapter by Joost A. M. Meerloo on the influence of present-day technologic developments upon the family, a subject of psychiatric and psychologic concern. Meerloo concentrates on three interesting topics: (1) the technical invasion (the process of technicizing); (2) the invasion by psychological concepts (the process of psychologizing); and (3) the invasion by confusing semantics of love (the process of glamourizing). He develops his discussion around the thesis that "The family unit of parents and children is the prototype and nucleus of man's greater social experiment in living together"; therefore, it is worth while to investigate the effect of this era on the subtle relations between marriage partners and between parents and their children. He pursues his discussion in these major areas by the use of everyday examples. He leaves the reader with a feeling of warmth and understanding as he indicates ways of replacing human values in the home, which has been shorn of its meaning by many advances of the age.

The roles of father, mother, and children in the family, presented in the next three chapters, place the "ingredients" of the family in relief against the technologic background already described and in relationship with one another. This has been done with the skill of an artist and the perceptiveness of the sensitive specialist. The authors, Lucie Jessner, Claire M. Ness, and Sidney Berman, write not only of problems and conflicts but of the confounding way of life for all of us, thus helping each reader to gain perspective.

Other chapter topics and authors include the emotional impact of in-laws and relatives, discussed by Nathan W. Ackerman; the impact of aging in the family, by D. Griffith McKerracher; the individual, the family, and the community, by Judd Marmor; the individual, the family, and the boss,

by Bertram Schaffner; and the disintegrating impact of "modern" life on the family in America, and its explosive repercussions, by Lawrence S. Kubie. Dr. Kubie concludes the final chapter with this statement: "If I have convinced you that the family in our culture is threatened by a deep and malignant illness, we will have taken one forward step."

This book should be used widely in medical and liberal arts education. It can be of inestimable value to the non-psychiatrist in helping to point up factors prominent in his psychophysicologic practice.

FLEDA M. BRIGHAM, D.O.

▶ PSYCHOPATHIC PERSONALITIES. By Professor Kurt Schneider; Formerly Director, Psychiatric and Neurological Clinic, University of Heidelberg. Translated by M. W. Hamilton, B.A. (Lit. Hum.) Oxon; Tutor for Psychiatric Social Work, Department of Psychiatry, University of Manchester. Cloth. Pp. 163. Price $3.75. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1958.

This is a small book, a translation from the German by M. W. Hamilton. The author states clearly that his intention has been to give a description of what has been called psychopathic personality, and that he has quoted literature that gives a description similar to his own.

The book is divided into two sections, one dealing with general principles and the other with illustrative descriptions. Under Principles the author discusses basic concepts, first defining personality as a particular aspect of the human psyche, standing for the individual's unique quality and including his feelings and personal goals. He goes on to define "normal" as being of two kinds: a factual average or, in a subjective sense, the implication of a personal standard. Abnormal personality would then be a variation upon an accepted yet broadly conceived range of average personality. The variation may be expressed as an excess or deficiency of certain personal qualities, and whether this is judged to be good or bad is immaterial to the issue. Abnormal personalities are those that suffer personally because of their own abnormality and those that make the community suffer because of it. The psychopathic personality is a make-up of both factors, but the social clash is secondary to the personality anomaly. The author protests use of the word "illness" for any condition other than some bodily process.

Next in the discussion comes consideration of the somatic factors of psychopathic personality, and in this connection the author contends that constitutional and genetic changes are a fundamental part of these abnormalities.

There follows a discussion of the different classifications of the condition, and the author covers the field. From this he evolves a typology and discusses the uses and limitations of it. He gives a separate chapter to psychotic involvement.

In the section on descriptive groups the author classifies by illustration. First considered are hyperthymic psychopaths, which may be epitomized as those persons with a hyperthymic self-esteem and love of being important, and who hence will have a tendency to boast and lie. Then come the depressive psychopaths; these present no real social problem, since even the paranoid ones are usually quiet and retiring. Then there are the insecure psychopaths, including those with compulsions. Next are the fanatic psychopaths, who express an over-valuation of a particular set of ideas. Attention-seeking psychopaths are another group, described by Koch as persons who constantly drag their egos into the center of the picture. In sixth category are the labile psychopaths, the victims of shiftless social instability. Then there are explosive psychopaths, affectionless psychopaths, weak-willed psychopaths, and asthenic psychopaths. The grouping is descriptive and does not imply a difference in the basic nature of the different manifestations.

The book is authoritative; it is well written and clearly expresses its content. There are no discussions of treatment or therapeutics, except for a few superficial notes. The book will be of interest to all physicians.

THOMAS J. MEYERS, Ph.D., D.O.

▶ FUNDAMENTALS OF MODERN ALLERGY. Edited by Samuel J. Prigal, M.D. Cloth. Pp. 690 with some illustrations. Price $18.50. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, 1960.

This book is a series of articles which first appeared in the *New York State Journal of Medicine*. Fifty-nine authors contributed sixty-three papers.

The book is divided into five sections. The first comments on the mechanisms and causal factors in allergy; not only the physiologic changes, but the projected pathologic changes and the implications of allergy are discussed. The collagen diseases as a manifestation of allergic phenomena are contemplated. The second section discusses tests, procedures, and technics for diagnosis of allergic conditions. Greatest stress is placed on history and its importance without depreciating the value of tests. The third section discusses the manifestations of allergy, including the more unusual types such as hematologic, gastrointestinal, and those in the central nervous system. Comments repeatedly stress the bacterial antigenic factor in the role of allergy, particularly in respiratory allergies. Section five is devoted to allergy in childhood and old age and the problems associated with each. The use of transfer tests is questioned.

The book concludes with a section on general treatment and prophylaxis in allergy. The book is recommended as basic reading for persons who are in contact in any way with the allergic patient, whether they be in EENT practice, general practice, dermatology, internal medicine, gastroenterology, or surgery.

It is not a book in which one discovers basically how to treat patients for a particular disease, but rather it gives an understanding of the altered physiology of the disease process and the guarded care one uses when treating these processes in order to help the allergic patient return to a normal life.

A. P. ULBRICH, D.O.

▶ MEDICAL CARE OF THE ADOLESCENT. By J. Roswell Gallagher, M.D., Chief of the Adolescent Unit, The Children's Hospital Medical Center, Boston, and Lecturer on Pediatrics, Harvard Medical School; and The Staff Physicians of the Adolescent Unit. Cloth. Pp. 369, with illustrations. Price $10.00. Appleton-Century-Crofts, Inc., 35 West 32nd Street, New York 1, 1960.

This is a textbook concerning the medical care and understanding of adolescents and their disorders. It deals with their illnesses, injuries, and personality difficulties, and consequently is directed to all who care for their health: general practitioners, pediatricians, internists, various other specialists, college and school physicians, public health workers, nurses, and medical students. Considerable attention is devoted to describing their physiologic and their psychologic characteristics and needs and how they affect the evaluation and management of their disorders.

Because adolescents are different, the doctor's relationship to these patients must be different. It is no longer the parent who tells all the story. The doctor learns how to talk to the adolescent, or better yet, how to get the adolescent to talk to him. With this in view the proper examination procedures, management of various physical problems, and abnormalities are discussed. The text also covers such matters as dyslexia, scholastic failure and athletic injuries, emotional problems, sex, homesickness, rebellion, anxiety, and delinquency, all of vital importance at this age level.

Physicians have a major part in prevention of delinquency, both in their role as the parents' adviser regarding a child's training and as a citizen who actively supports agencies interested in human welfare. Therefore this book should not be limited to text material, but the wise family doctor will see to it that he has one on his shelf for frequent use.

▶ RADIOLOGIC EXAMINATION OF THE SMALL INTESTINE. By Ross Golden, M.D., Visiting Professor of Radiology, University of California at Los Angeles, Professor Emeritus of Radiology, Columbia University; formerly, Director of Radiology, The Columbia-Presbyterian Medical Center, New York City. Ed. 2. Cloth. Pp. 560, with illustrations. Price $28.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

The first edition of this book appeared in 1945, and this lapse of time accounts for a completely revised edition. Much new work on the small intestine has appeared and additional information concerning its anatomic structure and physiology has become available. More scientific data available and puzzling observations emerging from routine examinations seem to defy explanation, which emphasizes the importance to clinical medicine of continued investigation of the physiology of the small intestine.

The anatomist, physiologist, and the pathologist will find the discussions in this text incomplete; however, the surgeon and internist who deal with the problems of abdominal diagnosis and the treatment of intestinal disorders will find basic facts concerning the action and control of the small intestine. Familiarity with these facts is of utmost importance to the radiologist who endeavors to study this complex structure by roentgen methods. For this purpose this book is written. No attempt is made to discuss the treatment of diseases of the intestine.

▶ ANATOMY. A Regional Study of Human Structure. By Ernest Gardner, M.D., Wayne State University; Donald J. Gray, Ph.D., Stanford University; and Ronan O'Rahilly, M.Sc., M.D., Wayne State University. Cloth. Pp. 999, with illustrations. Price $15.00. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1960.

The major aims of this work are to provide a textbook sufficiently brief for present-day shortened courses in human anatomy, to provide information on living anatomy, and to stress the importance of relationship between structure and function; and with the citation of relevant references to meet the needs of the more advanced student and postgraduate worker.

The special fields of neuroanatomy, histology, embryology, and comparative anatomy are not covered in this book. It has been kept as concise and simple as practicable in an attempt to achieve its didactic purpose. It adopted the regional plan to facilitate regional dissection procedures, however, not to the exclusion of systemic considerations.

It is well illustrated and many students of human anatomy will find it excellent as a text and helpful as a reference and review book.

▶ A DICTIONARY FOR MEDICAL SECRETARIES. By Isabel Alice Stanton, Secretary, Director of Graduate Training, Baylor University College of Dentistry; formerly Supervisor, Baylor Hospital Central Dictating Unit; Secretary, Coordinator of Internal Medicine, Division of Graduate Medicine, University of California, Los Angeles. Cloth. Pp. 175. Price $6.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

The "big dictionaries" of medicine, so formidable to beginning medical secretaries and record librarians, now are not without alternative. The compiler of this small volume has worked for many years as a medical secretary and supervisor of medical transcribers, and so comes equipped with much experience to share.

Word roots are considered basic; these have been placed alphabetically so that they will not be overlooked. Many laboratory tests are defined

by type and purpose. There is also a list of words which are easily misunderstood, either because of irregularity of pronounciation or similarity to other words. In general, definitions have been simplified so as to be understandable to a layman.

This book fulfills its intended purpose. It might also be useful for other paramedical personnel who have more contact with medical terms than formal opportunity to learn their meanings.

▶ EDEMA. Mechanisms and Management. A Hahnemann Symposium on Salt and Water Retention. Edited by John H. Moyer, M.D., Professor and Chairman of The Department of Medicine, Hahnemann Medical College and Hospital; and Morton Fuchs, M.D., Assistant Professor of Medicine, Hahnemann Medical College and Hospital. Cloth. Pp. 833, with illustrations. Price $15.00. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1960.

The initial chapters of this book give a review of the basic physiology bearing on water and electrolyte distribution, as it relates to edema. This is followed by a review of the pharmacology and clinical use of the diuretic agents, and emphasis is placed on the most recent advances in the field of diuretic research. The direction of future research has been considered.

In the latter part of the book, the common clinical syndromes manifesting edema as a physical phenomenon are reviewed with reference to their physiopathology and the various approaches employed in therapy. The panel discussions not only cover material that may have been omitted in the didactic papers but also give the reader the benefit of authoritative agreements and disagreements in various phases of the subjects reviewed.

More than ninety authorities participated in this symposium on the mechanisms and therapy of edema. Investigators and clinicians in internal medicine are joined by those from the fields of pediatrics, obstetrics, and surgery. Men practicing in these fields and students interested therein will find this comprehensive review worth while if not imperative.

▶ THE PHOTOGRAPHY OF PATIENTS. Including Discussions of Basic Photographic and Optical Principles and Infrared Techniques. By H. Lou Gibson, F.B.P.A., F.P.S.A., Medical Division, Eastman Kodak Company, Rochester, New York. Ed. 2. Cloth. Pp. 200, with illustrations. Price $10.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

The difference between a good and poor medical photograph seldom depends wholly upon the equipment used. It is true that the author stresses the use of proper equipment with different types of cameras and lens properties, but his intent is to have medical photographers obtain results so that in color or black and white doctors will see the scientific detail necessary for immediate and/or progressive studies. Factors more pertinent than expensive equipment are positioning, lighting, background, and also film, exposure, and processing which are discussed.

The book is filled with technics necessary to obtain the best results possible. For example, a plumb line in the picture is a necessary device for posture and morphologic studies; a revolving adjustable laboratory stool used for a clinical posing chair provides comfort to the patient with practically any region of the body accessible to the camera; and positioning the upper extremity so that it is steadied by resting the finger tips or hand on a stool gives the arm a clear view against a dark background.

This second edition brings a new chapter on infrared technics vital for research, education, and practice, showing mainly the superficial venous patterns.

It is an excellent book for training photographic technicians either in classroom or private study, and the hobbyist will find excellent material on how to improve pictures and utilize available subject material.

▶ SURGICAL GASTROENTEROLOGY. Considerations Based on Pathologic Physiology. By Warner F. Bowers, A.B., B.Sc., M.D., M.Sc., Ph.D. (Surg.), Diplomate of the American Board of Surgery; Diplomate of the National Board of Medical Examiners; Fellow and Past Governor, American College of Surgeons; Founder-Member, Central Surgical Association; Membre Titulaire, Societé Internationale de Chirurgie; Life Member, Association of Military Surgeons of the United States; Colonel, U.S. Army Medical Corps; Chief of Department of Surgery and Chief, General Surgery Service, Tripler U.S. Army Hospital, Honolulu, T. H.; formerly Chief of Department of Surgery and General Surgery Service at Brooke U.S. Army Hospital, Fort Sam Houston, Texas; formerly, Professor of Surgery, Graduate School, Baylor University; formerly, Chief Surgical Consultant of G.H.Q., Far East Command (1946-48) and to the Surgeon General of the Army (1948-52); formerly, Associate Fellow, American Proctologic Society; Winner of Wellcome Medal and Prize in Military Surgery for 1955. Cloth. Pp. 498, with illustrations. Price $16.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

Since most often the decision for or against surgery is made before the surgeon is called, according to the author of this book, other specialists and generalists must have a good understanding of pathophysiology, treatment advocated, reason influencing the decision, and results to be anticipated. Even more to the point, these other specialists and generalists must know which patients can be helped by surgical treatment and what the limitations are. In order to effect closer teamwork between the surgeon and the general practitioner, internist, or gastroenterologist, who usually see the patient first, this book has been written.

Arrangement of the book is by body area and then by specific disease. In each case there is ample description of diagnostic methods and possibilities for treatment. There is also an opening section dealing with fundamental aspects of surgical gastroenterology, including special diagnostic

methods, preoperative and postoperative care, peritonitis, trauma, and so forth. While there would surely be disagreement with some treatment methods recommended, the book is a good one and it fills a definite need.

▶ THE PRINCIPLES AND PRACTICE OF MEDICINE. A Textbook for Students and Doctors. By Sir Stanley Davidson, B.A. Cantab., M.D., F.R.C.P. Edin., F.R.C.P. Lond., M.D. Oslo, F.R.S. Edin., Physician to H. M. the Queen in Scotland; Professor of Medicine and Clinical Medicine, University of Edinburgh, 1938-59; Physician-in-Charge, Royal Infirmary, Edinburgh, 1938-59; Regius Professor of Medicine, University of Aberdeen, 1930-38; and Past and Present Member of the Staff of the Department of Medicine, University of Edinburgh, and Associated Clinical Units. Ed. 5. Cloth. Pp. 1112, with illustrations. Price $8.00. The Williams & Wilkins Company, 428 East Preston Street, Baltimore 2, 1960.

This book has been revised or reprinted every year for the past 8 years, a phemomenal record for a text in a somewhat overcrowded field. This fifth edition follows the same editorial policies that have made the book so popular in the past: There is no attempt to describe every rare disease or syndrome; most space is devoted to disorders commonly encountered in practice. Although new material has been added in every section, careful deletion of obsolete or redundant matter has kept the book within reasonable dimensions. Close cooperation between contributors and editor have made the style quite consistent throughout the book; and this style is in itself a matter for commendation in terms of interest and clarity. All of these matters are a partial indication of the reasons for the success of the book, and on this same basis future acceptance can be safely prophesied.

▶ MEDICAL DISCOVERIES. Who and When. By J. E. Schmidt, Ph.B.S., M.D., Litt.D. A Dictionary Listing Thousands of Medical and Related Scientific Discoveries in Alphabetical Order, Giving in Each Case the Name of the Discoverer, His Profession, Nationality, and Floruit, and the Date of the Discovery. Cloth. Pp. 555. Price $14.75. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1959.

Some time ago we reviewed a book by J. E. Schmidt called *Reversicon: A Medical Word Finder,* an entertaining and somewhat useful reverse dictionary of medical terms and expression, ideal for helping the doctor to occlude still further the diagnosis in a case where long words seem the best placebo. We have also seen other dictionaries of slang and medical lingo by this same man. This present book seems to be the first of the grammatolater's "serious" contributions; and even so, it is a collection of incidental information which will be of more help to writers and editors than to most practicing physicians.

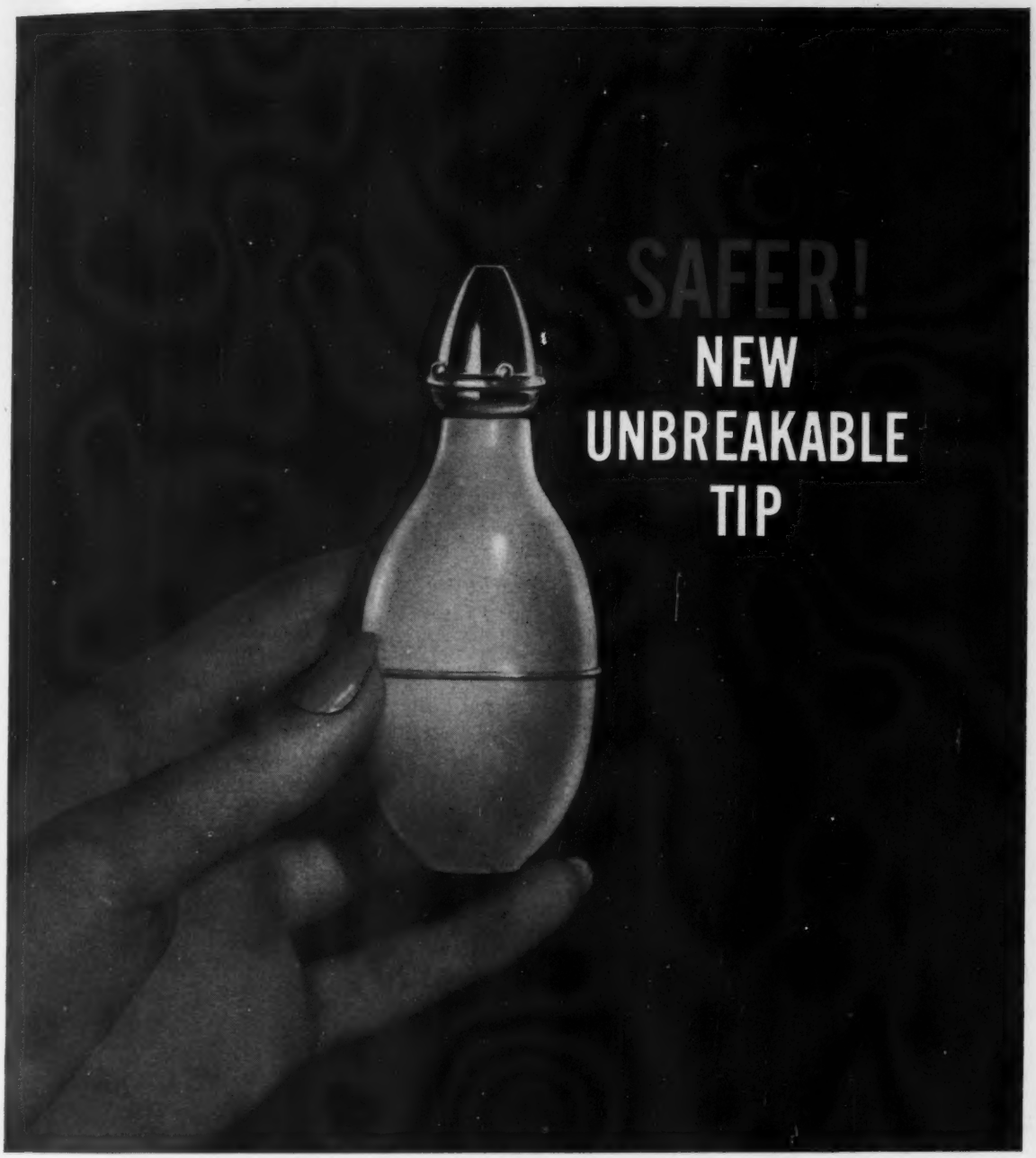
The book lists in dictionary form the names of thousands of medical and related scientific discoveries, and gives in each case the name of the discoverer, his profession, nationality, floruit, and the date of the discovery. There is no way to assay its complete accuracy without covering the same ground as Dr. Schmidt has covered in research; but whatever else can be said about this book, it is interesting, particularly as a reference book to the student of medical history and secondarily for anyone who is chronically curious.

▶ NEOPLASMS OF BONE and Related Conditions. Etiology, Pathogenesis, Diagnosis, and Treatment. By Bradley L. Coley, M.D., Attending Surgeon (Emeritus), Bone Tumor Department, Memorial Hospital for Cancer and Allied Diseases, New York. Ed. 2. Cloth. Pp. 863, with illustrations. Price $30.00. Paul B. Hoeber, 49 East 33rd Street, New York 16, 1960.

The second edition of this comprehensive reference work has been completely revised and largely rewritten, with an eye toward providing help for the radiologist, the orthopedic surgeon, and any doctor dealing with affections of the musculoskeletal system, as well as the oncologist to whom it is primarily addressed. New entities described are chondromyxoid fibroma, aneurysmal bone cyst, juxtacortical low-grade osteosarcoma (parosteal osteoma), and malignant angioblastoma. The change in concept of the giant-cell tumor is recorded. Osteogenic sarcoma is now listed in three subdivisions, and the difference in curability rate is indicated; these types are chondrosarcoma, fibrosarcoma, and osteosarcoma. Surgical, radiologic, and constitutional therapy are discussed. There is also a section on skeletal lesions that may simulate neoplasms of bone, and a chapter on medicolegal aspects of trauma in tumors of bone. Illustrations continue to be profuse, although the fine points of microscopic pathology are left to the standard works in that field.

▶ Christopher's MINOR SURGERY Edited by Alton Ochsner, M.D., F.A.C.S., Professor of Clinical Surgery, Tulane University School of Medicine; and Michael E. DeBakey, M.D., F.A.C.S., Professor of Surgery and Chairman of the Department of Surgery, Baylor University College of Medicine. Ed. 8. Cloth. Pp. 539, with illustrations. Price $10.50. W. B. Saunders Company, Philadelphia, 1959.

This classic work, now in its eighth edition, is concerned with conditions that can and should be diagnosed and treated in a physician's office, in an outpatient clinic, or in the patient's home. The patient may or may not be ambulatory, but procedures requiring hospitalization are not discussed. Changes from previous editions are many: most chapters have been completely revised; and three new chapters have been added, on injuries of the hand, diseases of the breast, and physical treatment in minor surgery. The book is so widely accepted that the only recommendation necessary is a mere notice of the publication of a new edition bringing the subject matter up to date.



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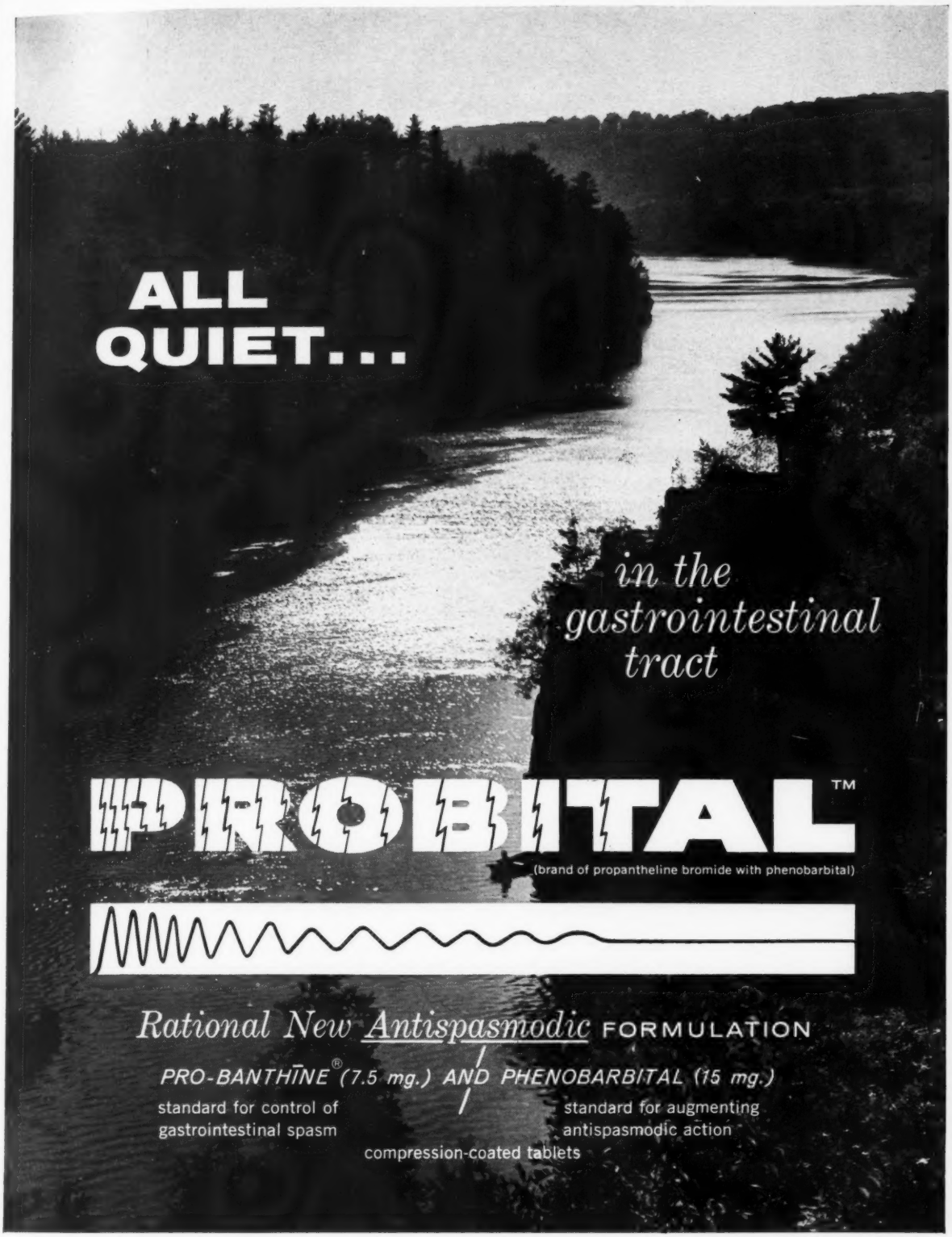
1. Worne, H. E., and Smith, L. W.: N. Y. Physician and Am. Med. *53:* 44 (Dec.) 1969. 2. Smith, L. W., and Worne, H. E.: Antibiotic Med. and Clin. Therapy *4:* 515 (Sept.) 1957. 3. Worne H. E., and Smith, L. W.: 8th International Congress of Bronchoesophagology, Vienna, Austria (Aug. 31) 1956. 4. Clinical reports on file at Pharmaceutical Industries, Inc. 5. Weise, H. F., Hansen, A. E., and Adam, D. J. D.: J. Nutrition *66:* 345 (Nov.) 1958. 6. Adam, D. J. D., Hansen, A. E., and Weise, H. F.: J. Nutrition *66:* 555 (Dec.) 1958. 7. Hansen, A. E., et al: J. Nutrition *66:* 565 (Dec.) 1958. 8. Ivy, A. C.: J. A. M. A. *105:* 5-6 1935. 9. Lim, R. K. S., et al: Proc. Soc. Exp. Biol. Med. *27:* 880, 1930. 10. Smith, L. W., and Worne, H. E.: Am. J. Med. Sc. *237:* 602 (May) 1959.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References: 1. Spielman, A. D.: *Michigan Acad. Gen. Pract. Symposium*, Detroit, 1959. 2. Alfaro, R. D.: Graeanin, V. and Schlueter, E.: *J. Lancet (in press)*. 3. Huels, G.: *Michigan Acad. Gen. Pract. Symposium*, Detroit, 1959.

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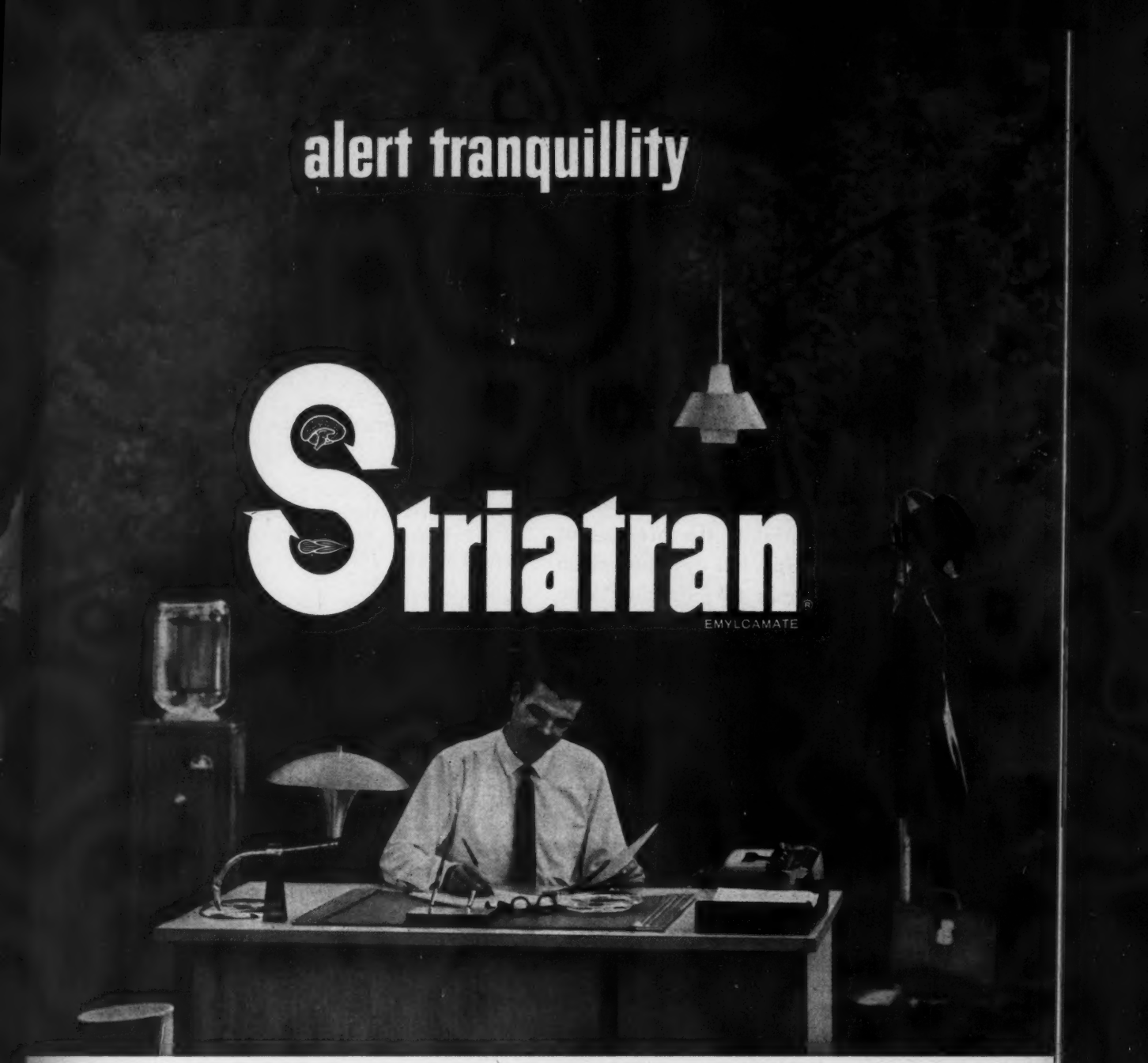

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THE PURPOSE of the awards is to stimulate editorial interest in the practice of osteopathic medicine. It is designed as an expression of thanks to journalists who have concerned themselves with the nation's health problems and who have sought to explain the contribution of the osteopathic profession to the health care of the nation.

COMPETITION for the awards will be open to regularly employed editors and reporters of daily and weekly newspapers of general circulation. Members of the osteopathic profession and their employees will not be eligible for competition.

THE THREE AWARDS are separate and will be regarded equally with no attempt made to categorize the entries. In accordance with the decision of the judges, they will be given for the best single articles or series of articles on osteopathic subject matter. This may include news stories about such events as hospital dedications, osteopathic college programs, conventions, speeches, research findings, legal battles, etc., and features about individual doctors and about institutions.

Rules and Procedures

• Entrants may submit up to five separate entries. A series of articles may be submitted as a single entry if continuity is self-evident. Coverage of a convention or event also may be a single entry if it is intended to show comprehensiveness of coverage. Stories from a series or single articles about a convention may be submitted separately. A single story should be submitted only once, however, whether as a part of a series or as an independent article.

• The article must have been published during 1960.

• Entries are to be sent to: Newspaper Story Competition, American Osteopathic Association, 212 East Ohio Street, Chicago 11, Illinois, before February 15, 1961.

• Entries should be accompanied by a letter of submission, stating the author's employment. Should a question of authorship arise, the entrant must be prepared to prove his claim to the material by a statement from an editor or other such evidence.

• Stories should be submitted as clippings pasted on plain paper. Heads and art work may be retained or deleted.

• Entries will become the property of the AOA. Those not receiving awards can be returned at the conclusion of the judging at the specific request of the entrant. Permission for publication of winning entries in AOA publications is implicit in entry. Any other publication will require specific consent of the author. Proper credit will be given to author and newspaper for material used in any fashion.

Judging

The entries will be judged on the basis of the standards of good journalism and on their contribution to the public understanding of the profession of osteopathy. The final judging will be done by one or more professional journalists or journalism instructors having no connection with the osteopathic profession. For the purpose of determining the scientific factuality of stories dealing with technical subjects, such stories will be reviewed by a committee of doctors of osteopathy and passed on with any necessary comments for final judging.

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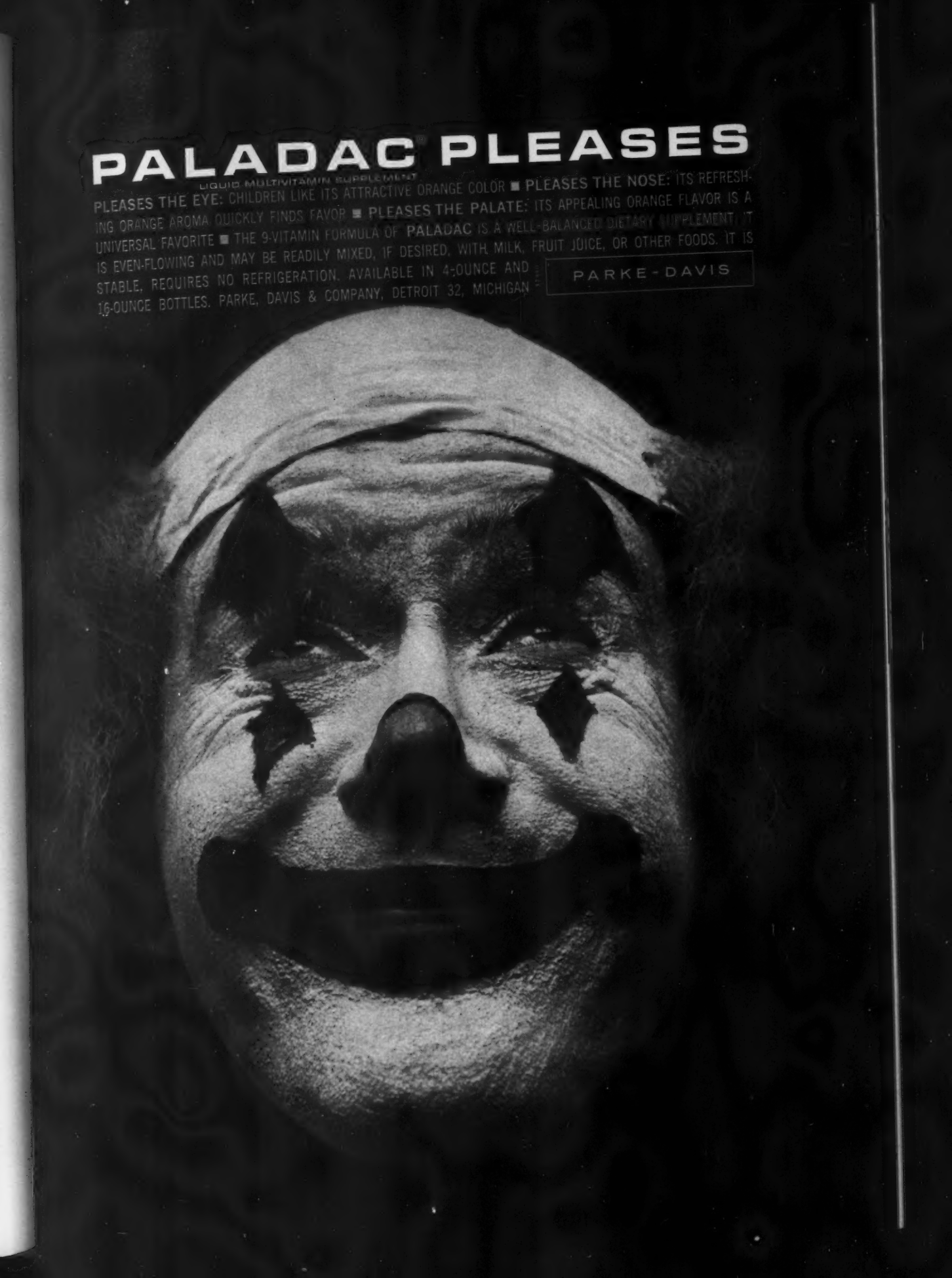

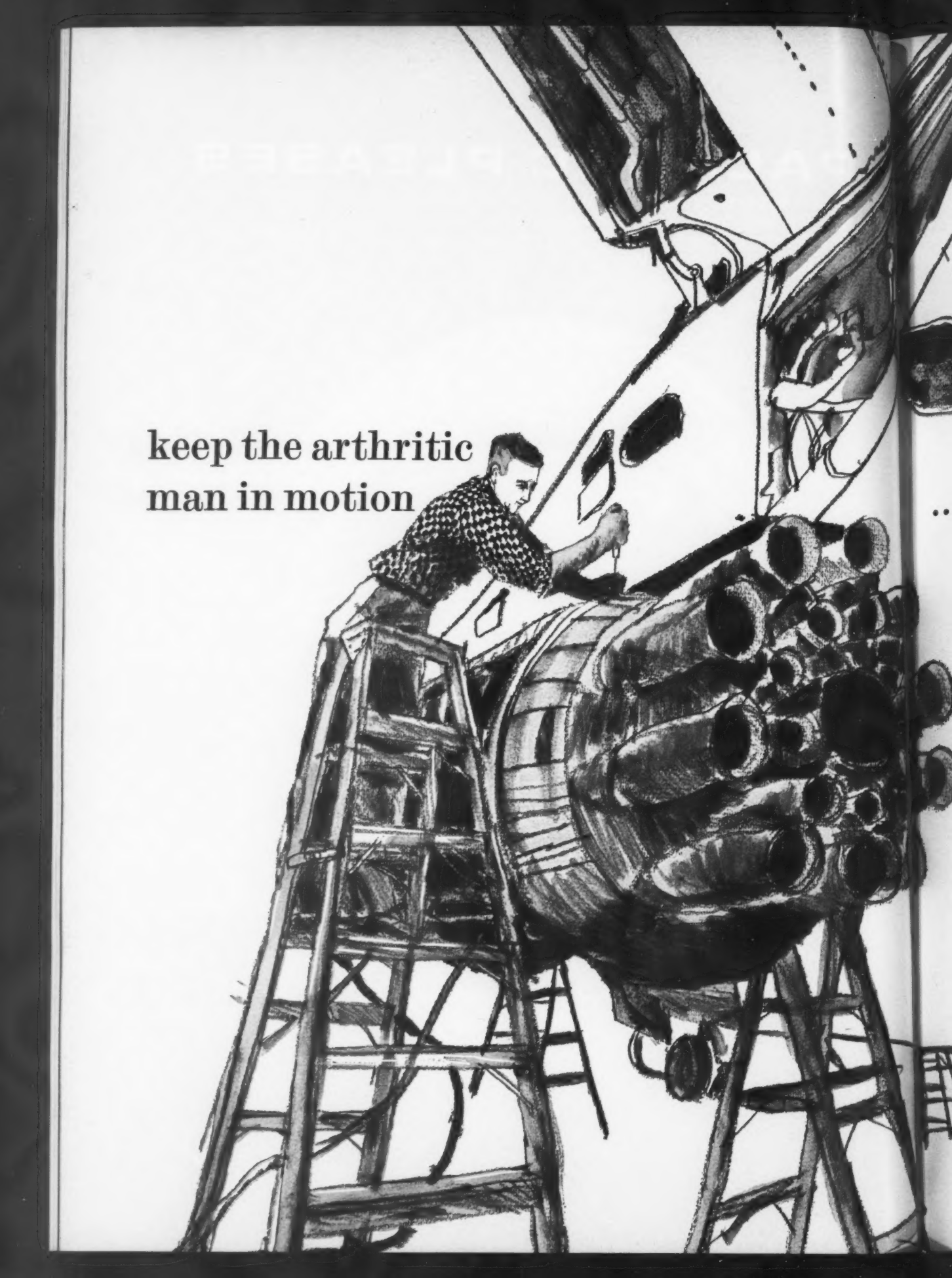
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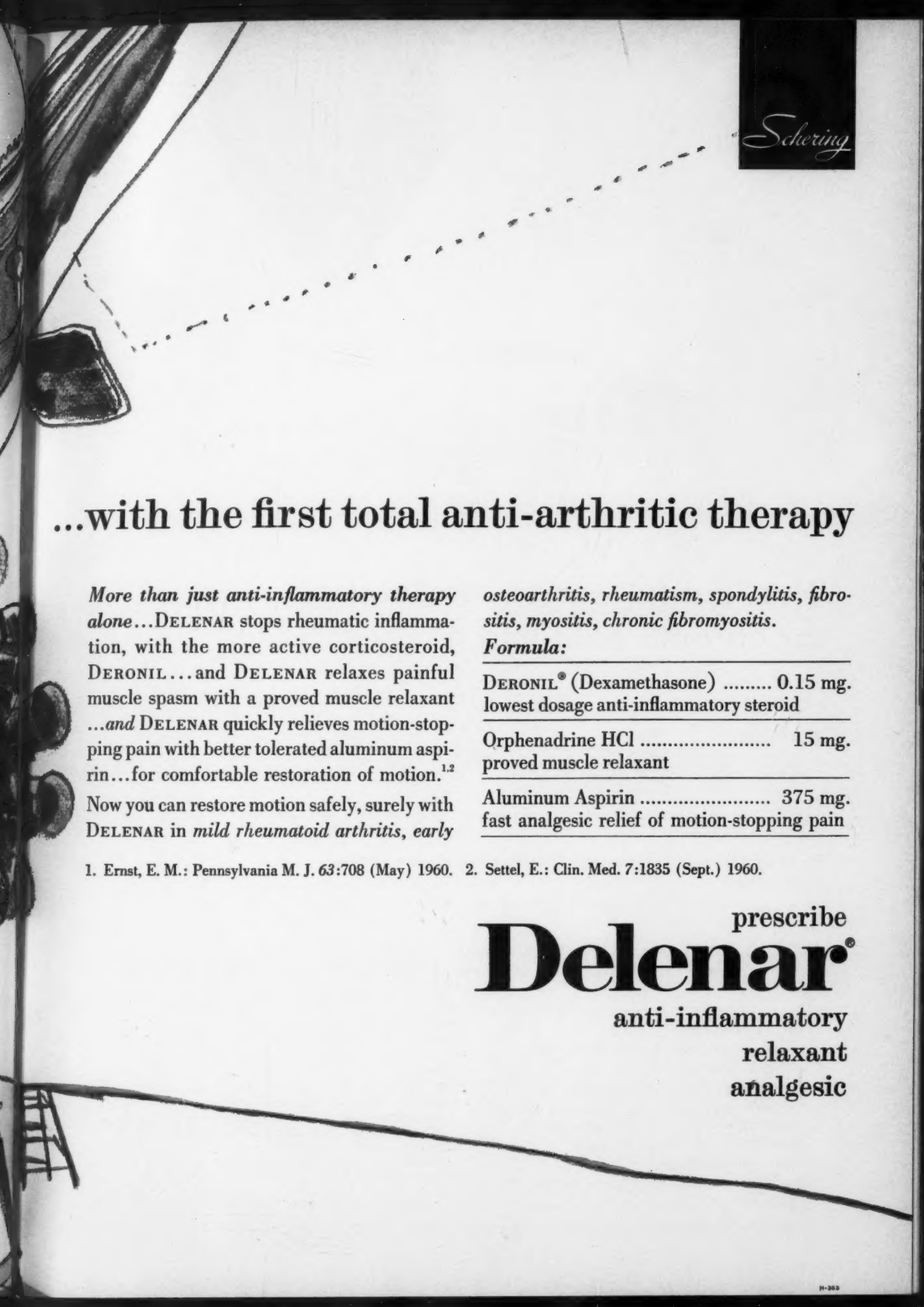

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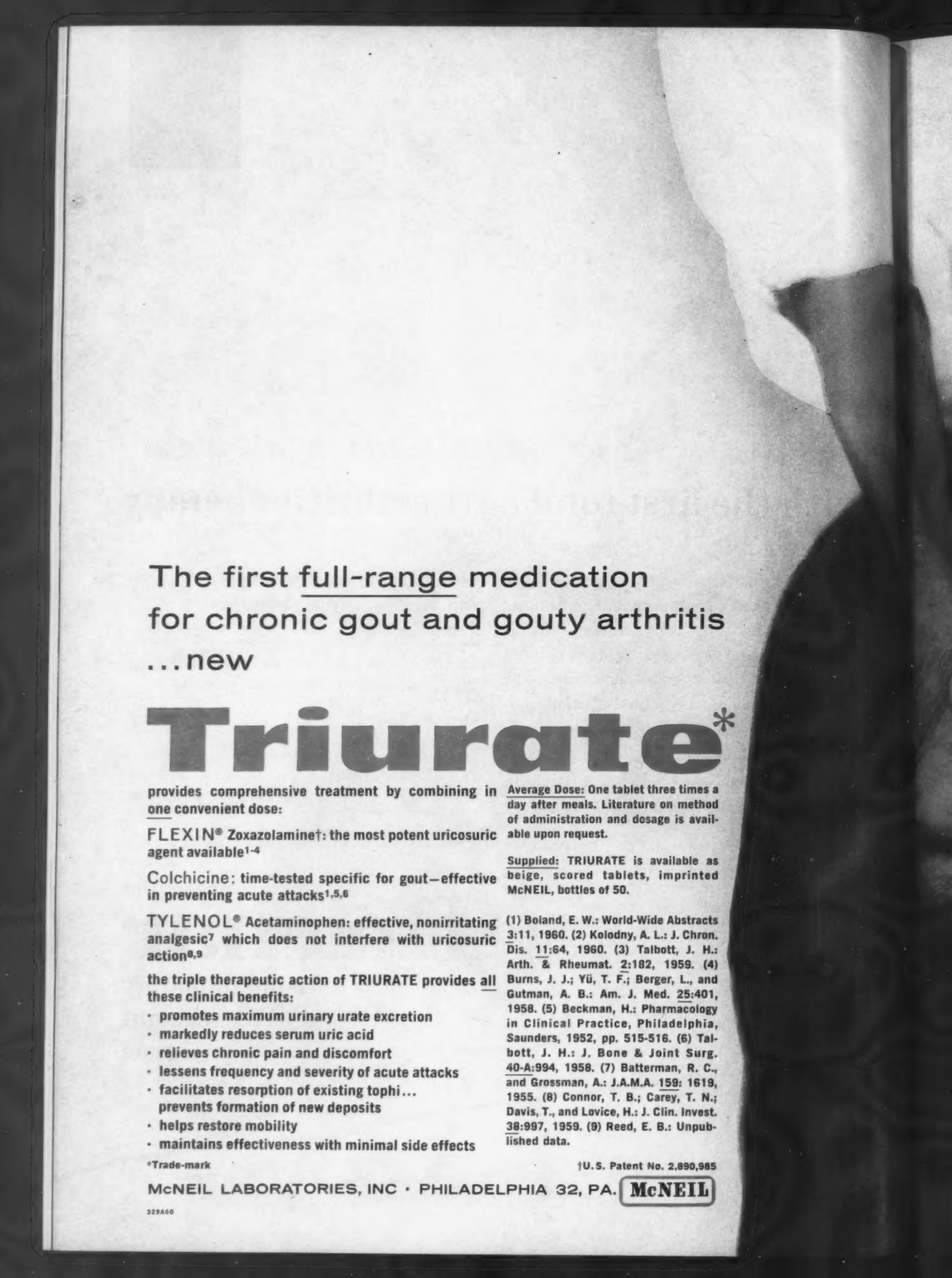

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Conventions and meetings

Academy of Applied Osteopathy, annual meeting, Miami Beach, Fla., January 27. Secretary, Margaret W. Barnes, P.O. Bin 1050, Carmel, Calif.

American College of Osteopathic Internists, Eastern study conference, Warwick Hotel, Philadelphia, March 10-12. Secretary, Glennard E. Lahrson, 400 40th St., Oakland 9, Calif.

American College of Osteopathic Obstetricians and Gynecologists and American College of Osteopathic Pediatricians, annual meeting, Stardust Hotel, Las Vegas, Nev., February 6-9. A.C.O.O.G. Program Chairman, David B. Percival, 400 40th St., Oakland 9, Calif. Secretary, Arthur A. Speir, Box 66, Merrill, Mich. A.C.O.P. Program Chairman, Arnold Melnick, 7247 Charles St., Philadelphia 35. Secretary, Martyn E. Richardson, 9553 Lackland Rd., St. Louis 14.

American College of Osteopathic Surgeons, annual clinical assembly, Denver Hilton Hotel, Denver, Colo., October 29-November 2. Executive Secretary, Charles L. Ballinger, Box 40, Coral Gables, Fla.

American Osteopathic Association, Sixty-Fifth Annual Convention, Carillon Hotel, Deauville Hotel, Miami Beach, Fla., January 23-26. Program Chairman, Ward E. Perrin, Chicago Osteopathic Hospital, 5250 S. Ellis Ave., Chicago 15.

American Osteopathic College of Proctology, refresher course, March 20-21; **annual clinical assembly,** March 22-24, The Rice Hotel, Houston, Texas. Program Chairman, Horace A. Emery, 2901 Ave. Q, Lubbock, Texas. Secretary, Eugene W. Egle, Lackland Clinic, 2335 Brown Rd., St. Louis 14.

Arizona, annual meeting, May 13-15, Ramada Inn, Phoenix. Program Chairman, L. A. Nowlin, 1325 W. McDowell Rd., Phoenix 32. Executive Director, Mr. Stanley N. Schultz, Pima Plaza Bldg., Suite 213, 2030 E. Broadway, Tucson.

Canadian Osteopathic Association, annual meeting, October 5-7. Secretary, Miss Joyce S. Currie, 609 Medical Arts Bldg., Montreal 25, Quebec.

Colorado, annual meeting, Broadmoor Hotel, Colorado Springs, April 13-15. Program Chairman, H. V. Anderson, 2112 Carlton Bldg., Colorado Springs. Secretary, C. Robert Starks, 1459 Ogden St., Denver 18.

Florida, annual meeting, Carillon Hotel, Miami Beach, October 2-4. Executive Director, Mr. Barton K. Johns, 5009 Central Ave., Tampa 3.

Georgia, annual meeting, Gardens Motel, Callaway Gardens, May 15-17. Program Chairman, Raymond S. Houghton, 314 N. Dawson St., Thomasville. Secretary, Alfred R. Haight, 2170 Idlewood Rd., Tucker.

Illinois, annual meeting, Palmer House, Chicago, April 20-23. Executive Secretary, Mr. Douglas O. Durkin, Room 521, 53 W. Jackson Blvd., Chicago 4.

Indiana, annual meeting, French Lick Sheraton Hotel, French Lick, May 20-23. Program Chairman, Loyd H. Riley, Odon. Secretary, Arabelle Baker Wolf, 4840 N. Michigan Rd., Indianapolis 8.

Iowa, annual meeting, Hotel Savery, Des Moines, May 7-9. Program Chairman, John W. Campbell, 204 Security Bldg., Davenport. Secretary, Mr. Herman W. Walter, 519-20 Insurance Exchange Bldg., Des Moines 9.

Maine, annual meeting, Hotel Samoset, Rockland, June 22-24. Executive Direc-

on the pathogenesis of pyelonephritis:

"An inflammatory reaction here [renal papillae] may produce sudden rapid impairment of renal function. One duct of Bellini probably drains more than 5000 nephrons. It is easy to see why a small abscess or edema in this area may occlude a portion of the papilla or the collecting ducts and may produce a functional impairment far in excess of that encountered in much larger lesions in the cortex."[1]

The "exquisite sensitivity"[2] of the medulla to infection (as compared with the cortex), highlights the importance of obstruction to the urine flow in the pathogenesis of pyelonephritis. "There is good cause to support the belief that many, perhaps most, cases of human pyelonephritis are the result of infection which reaches the kidney from the lower urinary tract."[3]

to eradicate the pathogens no matter the pathway

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High urinary concentration • Glomerular filtration plus tubular excretion • Rapid antibacterial action • Broad bactericidal spectrum • Free from resistance problems • Well tolerated—even after prolonged use • No cross resistance or cross sensitization with other drugs

Average Furadantin Adult Dosage: 100 mg. tablet q.i.d. with meals and with food or milk on retiring. *Supplied:* Tablets, 50 and 100 mg.; Oral Suspension, 25 mg. per 5 cc. tsp.

References: 1. Schreiner, G. E.: A.M.A. Arch. Int. M. 102:32, 1958. 2. Freedman, L. R., and Beeson, P. B.: Yale J. Biol. & Med. 30:406, 1958. 3. Rocha, H., et al.: Yale J. Biol. & Med. 30:341, 1958.

NITROFURANS—a *unique* class of antimicrobials

EATON LABORATORIES, DIVISION OF THE NORWICH PHARMACAL COMPANY, NORWICH, N. Y.

A-88

tor, Mr. George R. Petty, Monmouth.

Massachusetts, annual meeting, Hotel Somerset, Boston, January 21-22. Program Chairman, Bernard J. X. St. John, 16 Center St., Northampton. Executive Secretary, Mrs. Gladys M. Stockdale, 524 California St., Newtonville 60.

Minnesota, annual meeting, Lowry Hotel, St. Paul, May 4-6. Secretary, E. R. Komarek, 301 Granite Exchange Bldg., St. Cloud.

National Osteopathic Child Health Conference, Municipal Auditorium, Kansas City, Mo., April 17-19. Executive Secretary, Stan J. Sulkowski, 409 Scarritt Arcade, 819 Walnut St., Kansas City 6.

New Jersey, annual meeting, Traymore Hotel, Atlantic City, March 10-12. Program Chairman, Joseph V. Huffnagle, 101 Bowood Dr., Haddonfield. Executive Secretary, Mr. R. P. Chapman, 1212 Stuyvesant Ave., Trenton 8.

New Mexico, annual meeting, Milton Hall, New Mexico State University, Las Cruces, April 13-15. Program Chairman, Lory Baker, 400 N. Church St., Las Cruces. Secretary, Joseph M. Peterson, 1517 Fourth St., N. W., Albuquerque.

North Carolina, annual meeting and refresher course, Battery Park Hotel, Asheville, October 26-28. Program Chairman, Joseph H. Huff, Box 1177, Burlington. Secretary, Walter C. Eldrett, 310 S. Main St., Hendersonville.

Ohio, clinical conference, Doctors Hospital, Columbus, February 17-19. Program Chairman, Robert L. Turton, 111 W. Third Ave., Columbus 1. **Annual meeting,** Neil House, Columbus, May 7-10. Program Chairman, Paul J. Keckley, 2637 Sullivant Ave., Columbus 4. Executive Secretary, Mr. William S. Konold, 53 W. Third Ave., Columbus 1.

Ontario, annual meeting, Park Hotel, Niagara Falls, May 1-3. Program Chairman, M. Paul Christianson, 901-02 Pigott Bldg., Hamilton. Secretary, Eric B. Johnston, 2920 Bloor St., W., Toronto 18.

Oregon, annual meeting, Eugene Hotel, Eugene, June 12-14. Program Chairman, D. B. Bond, 290 E. 15th, Eugene. Secretary, David E. Reid, Box 277, Lebanon.

Osteopathic College of Ophthalmologists and Otorhinolaryngologists, annual meeting, Americana Hotel, Bal Harbour, Fla., September 26-28. Executive Secretary, Arthur A. Martin, Box 222, Kirksville, Mo.

Pennsylvania, annual meeting, Benjamin Franklin Hotel, Philadelphia, May 18-20. **Midyear refresher course,** Penn Harris Hotel, Harrisburg, October 13-15. Executive Secretary, Thomas M. Fogarty, 1941 Market St., Harrisburg.

High-concentration topical salicylate-menthol therapy (BEN-GAY) offers safe, penetrating relief of painful joints and muscles resulting from overexertion.

New, objective evidence:

A double-blind study[1] has reaffirmed the exceptional efficacy and safety of conservative, local treatment of chronic rheumatic disorders with BEN-GAY® (BAUME BENGUÉ), a high-concentration salicylate-menthol compound.

The local and systemic effects of BEN-GAY were evaluated by entirely objective methods in 211 subjects of both sexes suffering from various types of chronic arthritis, bursitis, neuralgia, myalgia and lumbago. Changes in range of joint motion were determined by goniometer and by flexion. Topical application of BEN-GAY measurably improved articular function in 94% when physical therapy was also used, and in 61% without adjunctive treatment. Efficient absorption of salicylate through the skin was indicated by an average urinary excretion of 15 mg. in 24 hours. No ill effects were reported or observed.

Benefits of Topical Salicylate

in chronic rheumatic disease

Menthol-induced hyperemia plus high local concentration of salicylate has been recently rediscovered as one of the safest and most promptly effective remedies for rheumatoid discomfort due to exposure.

This controlled study offers new evidence of the efficacy and safety of local treatment of chronic rheumatic disease with BEN-GAY, one of the safest and most reliable formulae at the physician's disposal. BEN-GAY is available in two strengths, *Regular and Children's.* THOS. LEEMING & CO., INC., 155 East 44th St., New York 17, N.Y.

[1]Brusch, C.A., et al.: Md. State Med. J.; 5:36, 1956.

***More efficient salicylate penetration* of treated area and quicker relief of pain is now made possible by the water-washable GREASELESS-STAINLESS BEN-GAY.**

Tennessee, annual meeting, Hotel Patten, Chattanooga, April 30-May 3. Program Chairman, Martin R. Caldwell, Soddy. Secretary, Paul Grayson Smith, Pikeville.

Texas, annual meeting, The Granada Hotel, San Antonio, May 4-6. Program Chairman, Clifford E. Dickey, 4021 E. Belknap, Ft. Worth 11. Executive Secretary, Phil R. Russell, 512 Bailey St., Ft. Worth 7.

Vermont, annual meeting, in the Manchester area, September 27-28. Program Chairman, Mason B. Barney, Box 336, Manchester Center. Clerk, Marian N. Rice, 8 Court St., Windsor.

Virginia, annual meeting, Williamsburg Lodge, Williamsburg, May 25-28. Program Chairman, Harold A. Blood, 228 N. Columbia St., Alexandria. Secretary, Henry S. Liebert, Jr., 3514 Grove Ave., Richmond 21.

West Virginia, annual meeting, Hotel Pritchard, Huntington, May 20-23. Program Chairman, Hoy E. Eakle, Summerville. Executive Secretary, Mr. Gilbert D. Brooks, 313 Berman Bldg., Charleston 1.

Wisconsin, annual meeting, Cerami's Resort, Burlington, May 21-23. Program Chairman, James W. Stout, Stout Clinic, 322 Vine St., Hudson. Secretary, V. L. Sharp, 3924 S. 51st St., Milwaukee 19.

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REGARDLESS OF VIRULENCE, RESISTANCE, CHRONICITY

● HIGHLY EFFECTIVE ● DRAMATIC RESPONSES IN CHRONIC CONDITIONS ● MICROBICIDAL EVEN AGAINST RESISTANT STRAINS OF STAPH. AND STREP., INCLUDING FOUR STRAINS OF STAPH. PHAGE GROUP 80/81 ● VIRTUALLY NONSENSITIZING AND NON-IRRITATING ● ODORLESS AND STAINLESS—HIGHLY ACCEPTABLE

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SELECTED BIBLIOGRAPHY: 1. R. C. V. ROBINSON, ANN. NEW YORK ACAD. SC., 52: (ART 1), 144, 1950. 2. E. EDELSON, E. GRUNBERG, A. D. CALABRESE AND T. V. MORTON, IBID., P. 124. 3. P. L. WILLIAMS, IBID., P. 135. 4. F. T. BECKER AND J. L. TUURA, IBID., P. 131. 5. S. M. BLUEFARB, IBID., P. 110. 6. R. J. SCHNITZER, E. GRUNBERG, W. F. DELORENZO AND R. E. BAGDON, ANTIBIOTICS & CHEMOTHER., 5:287, 1955.

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take off weight
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DAY-LONG ACTION CAPSULES

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PHANTOS unique "timed release" capsules contain all the appetite control ingredients needed for successful dieting. Sustained release throughout the day makes it easier for your patients to adhere to low or moderate calorie diets.

Each PHANTOS capsule, taken on arising, provides:

IMMEDIATE RELEASE	Amphetamine sulfate	5 mg.
	Thyroid	½ gr.
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	Aloin	¼ gr.
INTERMEDIATE RELEASE	Amphetamine sulfate	5 mg.
	Thyroid	½ gr.
	Atropine sulfate	1/360 gr.
FINAL RELEASE	Amphetamine sulfate	5 mg.
	Thyroid	½ gr.
	Phenobarbital (WARNING: MAY BE HABIT-FORMING)	¼ gr.

SUPPLIED: PHANTOS, red and yellow capsules, bottles of 30, 250 and 500. PHANTOS-10 (two-thirds strength for those who can be managed on lower dosage), bottles of 30 and 250.

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Camp's non-toxic, washable, light plastic Thomas Hyperextension Collar now available with Velcro closure for ease in fastening and edged with Don Lon covered foam rubber for comfort and durability. Available in six circumferences and five heights. Provides support where hyperextension is indicated in treatment of the cervical syndrome, subluxations, arthritis and cervical radiculitis injuries. Allows partial lateral head movement.
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The Camp Lewin wrap-around cotton collar is helpful when taking roentgenograms in cases of injuries with or without deformity, rheumatoid myositis (fibrositis), brachial neuropathy radiculitis, the neck-shoulder-hand syndrome, muscle injuries and subluxations of vertebral articular facets and as a first aid measure. It offers (1) prevention of further injury (2) air draft protection (3) body heat retention (4) comfort (5) mild traction. Three lengths — small 66", medium 78", large 96".

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State and national boards

Arizona Those interested in professional examinations should contact Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 E. McDowell Rd., Phoenix 22.

Basic science examinations March 21 at the University of Arizona, Tucson. Address Herman E. Bateman, Ph.D., secretary-treasurer, Board of Examiners in the Basic Sciences, University of Arizona, Tucson.

Colorado basic science examinations in March. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 18.

Connecticut examinations March 14-15. Address Frank Poglitsch, D.O., secretary, Osteopathic Examining Board, 300 Main St., New Britain.

Basic science examinations February 11. Address Miss M. G. Reynolds, executive assistant, Board of Healing Arts, 110 Whitney Ave., New Haven 10.

District of Columbia basic science examinations in April. Address Mr. Paul Foley, Deputy Director, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington 6, D.C.

Florida Dr. Orren J. Lawrance and Dr. William E. White, Jr., have been appointed to fill vacancies on the Board of Osteopathic Medical Examiners.

Hawaii For information on examination dates write to Richard Y. Kodama, D.O., secretary, Board of Osteopathic Examiners, 826 Keeaumoku St., Honolulu 14.

Illinois examinations in April. Applications must be filed by the middle of March. Address Mr. Frederic B. Selcke, superintendent, Department of Registration and Education, Capitol Bldg., Springfield.

Iowa basic science examinations April 11 at the Capitol Building, Des Moines. Address Elmer W. Hertel, Ph.D., secretary, Board of Basic Science Examiners, Wartburg College, Waverly.

Kansas Dr. Richard Gibson has been reappointed a member of the Healing Arts Board to serve until 1964.

Michigan basic science examinations in February. Address Mrs. Anne Baker, secretary, Board of Examiners in the Basic Sciences, 116 Mason Bldg., Lansing.

Minnesota basic science examinations April 4 at the University of Minnesota, Minneapolis. Address Raymond N. Bieter, M.D., secretary-treasurer, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

Montana examinations March 7. Address Warren E. Monger, D.O., secretary, Board of Osteopathic Examiners, Box 64, Dillon.

Nevada basic science examinations April 4. Address Kenneth C. Kemp, Ph.D., secretary, Board of Examiners in the Basic Sciences, Box 9355, University of Nevada, Reno.

New Hampshire examinations March 8-11. Address Edward W. Colby, M.D., secretary, Board of Registration in Medicine, State House, Concord.

New Mexico basic science examinations April 16. Address Mrs. Marguerite Cantrell, secretary, Board of Examiners in the Basic Sciences, Box 1522, Sante Fe.

North Carolina Dr. Walter C. Eldrett has been appointed a member of the Board of Osteopathic Examiners to serve until 1965.

After a history and a physical ruled out organic disease, the physician diagnosed the case as recurring states of anxiety. To relieve these symptoms for this busy, on-the-go housewife, he prescribes Meprospan-400, the *only* meprobamate in *sustained-release* form.

As directed, the patient takes one Meprospan-400 capsule at breakfast. Her symptoms of tension and nervousness are soon relieved, and she will not have to remember to take another capsule until dinnertime.

Calm and relaxed, the patient is no longer upset by the pressures and irritations met in everyday life, nor is she likely to be incapacitated by autonomic disturbances, drowsiness, ataxia or other untoward reactions.

Alert and attentive, the patient participates in a P.T.A. meeting, following her second capsule of Meprospan-400 taken with the evening meal. Meprospan-400 does not decrease her mental efficiency or interfere with her normal activities or behavior.

Peacefully asleep, the patient enjoys beneficial rest... Meprospan-400 has relieved the tensions that previously prevented sleep or kept her tossing and turning throughout the night.

most widely prescribed tranquilizer...
most convenient dosage form...

ONE CAPSULE LASTS 12 HOURS

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Usual dosage: One capsule at breakfast lasts all day, one capsule with evening meal lasts all night. **Supplied:** Meprospan-400, each blue-topped *sustained-release* capsule contains 400 mg. Miltown. **Also available:** Meprospan-200, each yellow-topped *sustained-release* capsule contains 200 mg. Miltown. **For children:** Capsules can be opened and the coated granules mixed with soft foods or liquids.

Both potencies in bottles of 30.

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1. Crawford, O. B.: Anesthesiology 14:278, 1953. 2. Wiedling, S.: Xylocaine, The Pharmacological Basis For its Clinical Use, Stockholm, Almquist and Wiknell, 1959.

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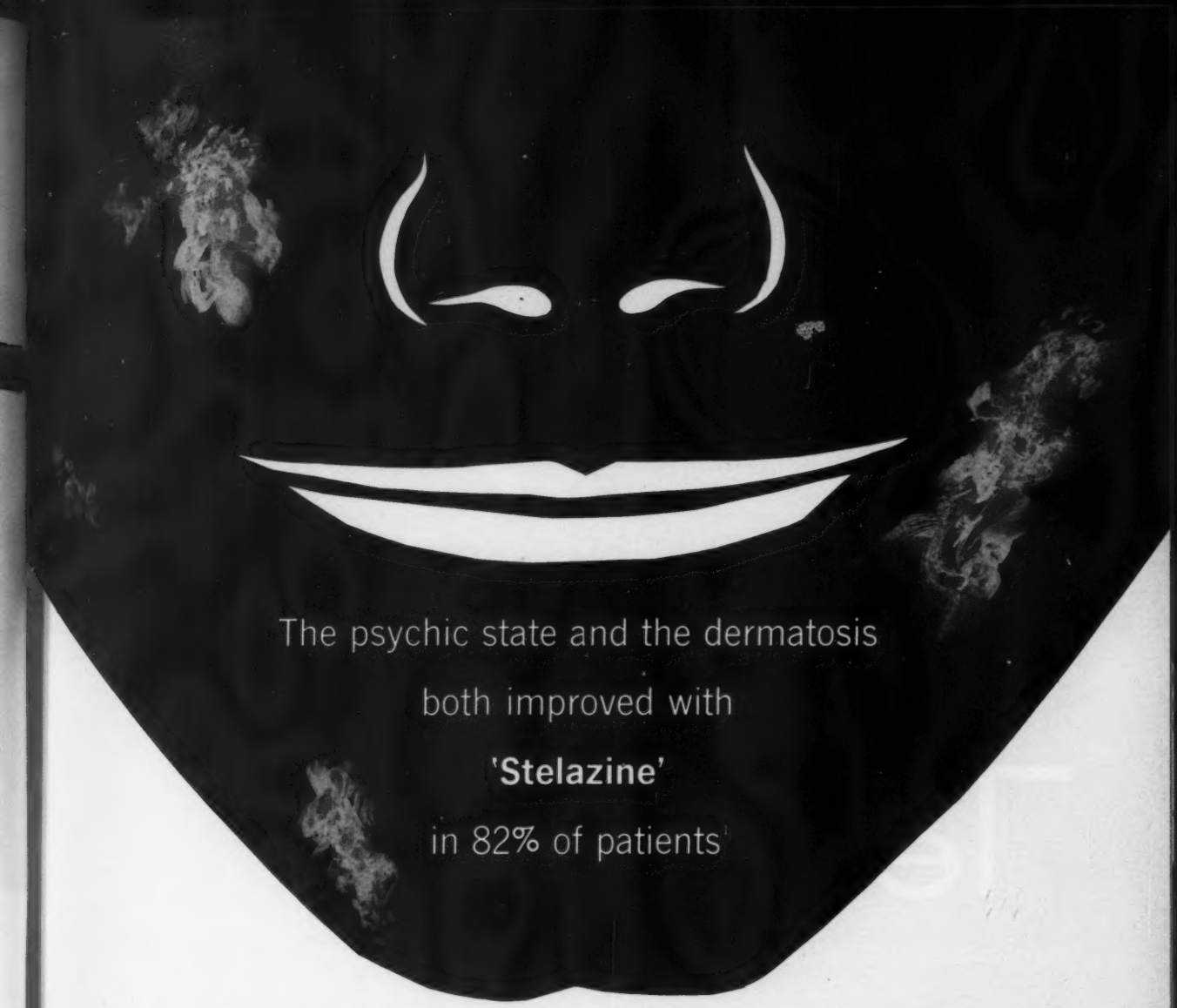

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1. Aceves-Ortega, R.: Trifluoperazine in the Treatment of Various Psychocutaneous Diseases, Semana méd. Mexico *23*:117 (Nov. 20) 1959 (in Spanish).

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when you suspect
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Dosage: Adults: 2 capsules 3 or 4 times a day for 3 to 5 days.
Children: 6 to 12 yrs.: One-half the adult dose.

Supplied: Bottles of 24 and 100 capsules.

According to a report by the Council on Drugs of the American Medical Association,* antibiotics may be administered for prophylaxis against secondary bacterial invaders in the following types of patients with influenza: pregnant women; debilitated infants; older individuals; patients being treated for other bacterial infections with chemotherapeutic agents, and patients with chronic, nonallergic respiratory disease.

*Council on Drugs, J.A.M.A. 165:58 (Sept. 7) 1957.

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In 1961, nine $1,000 awards will be made: three in general practice; two in pediatrics; two in obstetrics and gynecology; and two in internal medicine. Training is to be taken in an osteopathic college or college-affiliated hospital.

Grants are available to osteopathic graduates of 1957, 1958, 1959, and 1960. Application forms may be secured from the American Osteopathic Association, 212 E. Ohio Street, Chicago 11. Completed forms must be returned to the Association by May 1.

The Association administers this program through its Committee on Mead Johnson Grants. Mead Johnson & Company, in keeping with its policy, limits its participation solely to the provision of funds.

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In a clinical study[1] of 206 milk-allergic infants, the "colicky" symptoms evident in 31% were promptly relieved when the infants were placed on a soya formula.

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FOR DIAGNOSIS: If cow's milk allergy is suspected, a 24- to 48-hour trial period with Sobee often eliminates the need for an allergy study.

1. Chin, N. W.: Pediat. Clin. North America, Nov., 1954, pp. 949-962.

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North Dakota examinations in January. Address M. J. Hydeman, D.O., secretary, Board of Osteopathic Examiners, 417½ Broadway, Bismarck.

Oregon examinations in January. Address Mr. Howard I. Bobbitt, executive secretary, Board of Medical Examiners, 609 Failing Bldg., Portland 4.

Puerto Rico examinations March 7. Address Mr. Joaquin Mercado Cruz, secretary, Board of Medical Examiners, Department of State, Box 3271, San Juan.

Rhode Island examinations April 7-8. Address Mr. Thomas B. Casey, Administrator of Professional Regulation, 366 State Office Bldg., Providence.

Basic science examinations February 8. Address Mr. Casey.

Tennessee examinations in February. Address M. E. Coy, D.O., secretary, Board of Examination and Registration for Osteopathic Examiners, 1226 Highland, Jackson.

Basic science examinations given every 3 months. Address O. W. Hyman, M.D., secretary, Board of Basic Science Examiners, 62 S. Dunlap, Memphis 3.

Utah examinations third week in January. Address Mr. Frank E. Lees, director, Registration Division, Department of Business Regulation, State Capitol, Salt Lake City 14.

Vermont examinations in January. Address Charles D. Beale, D.O., secretary, Board of Osteopathic Examination and Registration, Mead Bldg., Rutland.

Washington examinations in January. Address Mr. Thomas A. Carter, secretary, Professional Division, Department of Licenses, Olympia.

Basic science examinations in January. Applications must be filed 15 days prior to examinations. Address Mr. Carter.

West Virginia Dr. Donald C. Newell has been reappointed a member of the Board of Osteopathy to serve until 1963.

Wisconsin basic science examinations April 8, Room 145, Birge Hall, University of Wisconsin, Madison. Applications must be filed by March 30. Address W. H. Barber, D.Sc., secretary, Board of Examiners in the Basic Sciences, 621 Ransom St., Ripon.

Wyoming examinations February 6. Address James W. Sampson, M.D., secretary, Board of Medical Examiners, State Office Bldg., Cheyenne.

British Columbia examinations in June. Applications must be filed 90 days prior to examinations. Address Lynn Gunn, M.D., registrar, Council of Colleges of Physicians and Surgeons, 1807 W. 10th Ave., Vancouver 9.

Reregistration of osteopathic licenses

January 31—British Columbia, set by the Council of Colleges of Physicians and Surgeons of British Columbia. Address Lynn Gunn, M.D., registrar, 1807 W. 10th Ave., Vancouver 9.

Before February 1—Vermont, $3.00 residents; $2.00 nonresidents. Address Roy M. Sherburne, D.O., treasurer, Board of Osteopathic Examination and Registration, 65 Railroad St., St. Johnsbury.

Before March 1—Colorado, $2.00 residents; $10.00 nonresidents. Address Miss Mary M. McConnell, executive secretary, Board of Medical Examiners, 715 Republic Bldg., Denver 2.

April 1—Montana, $2.00 residents in active practice; $1.00 nonresidents in active practice. Address Warren E. Monger, D.O., secretary, Board of Osteopathic Examiners, Box 64, Dillon.

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Before application of White's Vitamin A & D Ointment—Typical diaper rash with excoriation of skin.

After application of White's Vitamin A & D Ointment at every diaper change—Diaper rash has completely disappeared within one week.

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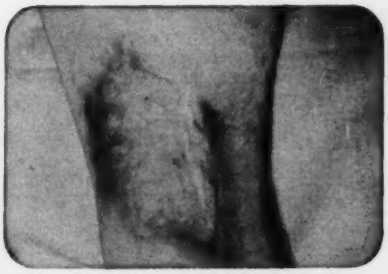

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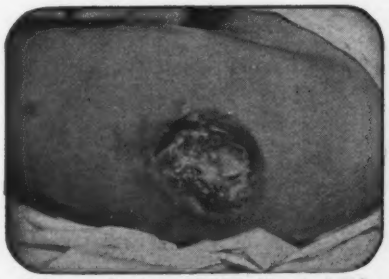

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After daily treatment with White's Vitamin A & D Ointment—The sore is now filled with granulation tissue and shows signs of re-epithelization at margins.

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NICOZOL COMPLEX is a cerebral stimulant-tonic and dietary supplement intended for geriatric use. Improves mental and physical well-being. Improves protein and calcium metabolism. Indicated during convalescence, also as a preventive agent in common degenerative changes.

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1 teaspoonful (5 cc) 3 times a day, preferably before meals. Female patients should follow each 21-day course with a 7-day rest interval.

Supply:

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Pentylenetetrazol	150 mg.
Niacin	75 mg.
Methyl Testosterone	2.5 mg.
Ethinyl Estradiol	0.02 mg.
Thiamine Hydrochloride	6 mg.
Riboflavin	3 mg.
Pyridoxine Hydrochloride	6 mg.
Vitamin B-12	2 mcg.
Folic Acid	0.33 mg.
Panthenol	5 mg.
Choline Bitartrate	20 mg.
Inositol	15 mg.
l-Lysine Monohydrochloride	100 mg.
Vitamin E (a-Tocopherol Acetate)	3 mg.
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NOTES TO PDR

anatomy; physiology; pathology; osteopathic principles, therapeutics and pharmacology; surgery; ophthalmology and otorhinolaryngology; obstetrics and gynecology; physical and clinical diagnosis; public health and communicable diseases.

These are oral examinations which the candidate may take after having satisfactorily completed the first six months of a 1-year internship in a hospital approved by the American Osteopathic Association for intern training. Part III is given annually.

The National Board of Examiners will conduct Part III examinations April 15 and 16, 1961, at the College of Osteopathic Physicians and Surgeons, Philadelphia College of Osteopathy, Detroit Osteopathic Hospital, and Kansas City College of Osteopathy and Surgery.

All candidates who are now serving an internship may file an application for Part III when 6 months of the internship have been completed. All others eligible for Part III whose internship of 1 year has been completed may file at any time. All applications must reach the office of the secretary not less than 30 days prior to the examination.

Address all communications to Paul van B. Allen, D.O., secretary, 4425 N. Meridian St., Indianapolis 8.

All candidates are reminded that the examinations must be completed within a period of 7 years. Candidates who took Part I in 1954 must take Part III in 1961 or forfeit the right to complete the examinations.

Eligibility requirements are as follows: Part I, satisfactory completion of the first 2 quarters or trimesters of the sophomore year in an approved school of osteopathy; Part II, satisfactory completion of Part I and of the first two quarters or trimesters of the senior year in an approved osteopathic college; Part III, satisfactory completion of Part II and at least 6 months of a 1-year internship approved by the American Osteopathic Association.

Applications for Part III must be filed with the secretary of the Board not later than March 15.

Examination by National Board

The National Board of Examiners for Osteopathic Physicians and Surgeons, Inc. conducts Parts I and II of its examinations on the first Thursday and Friday of each May and December at the six approved colleges. Application blanks may be obtained from the secretary of the Board or the dean of the college, and the completed application blank, together with check for the part to be taken, must be in the secretary's office by the November 1 or April 1 preceding the examination.

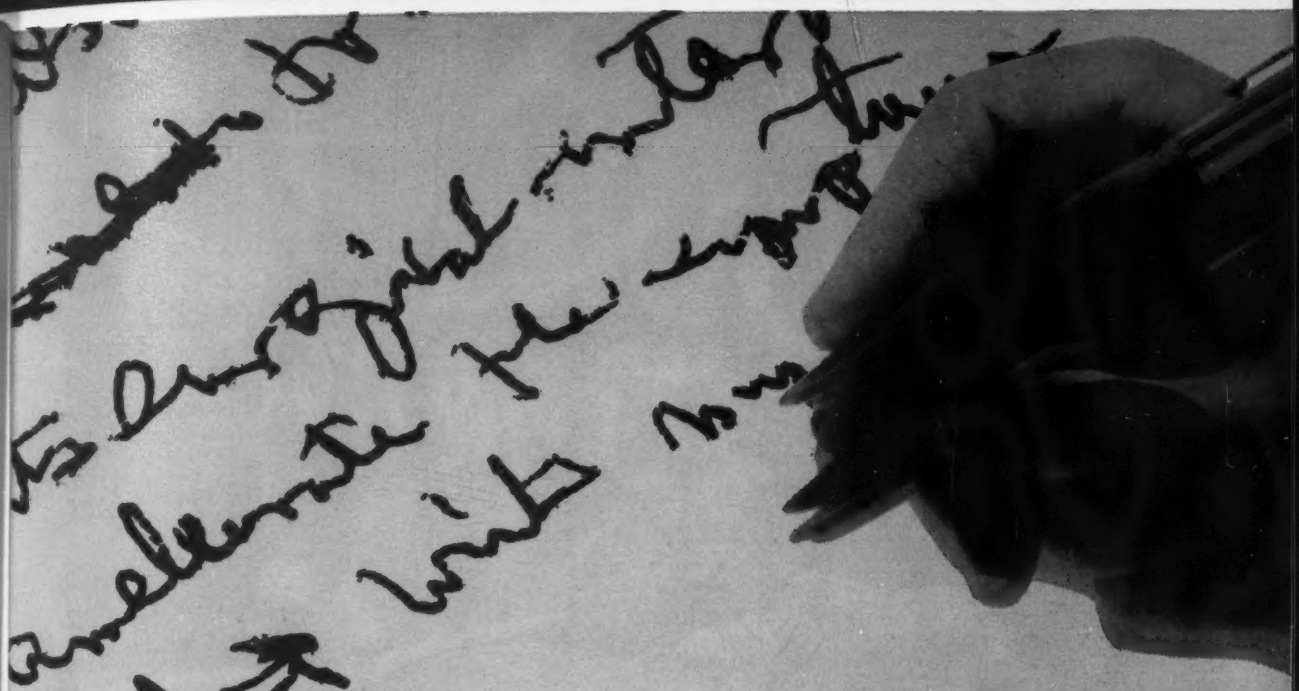
Examinations in Part I consist of anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; and bacteriology, including parasitology and immunology.

Part II consists of examinations in surgery, including applied anatomy, surgical pathology, and surgical specialties; neurology and psychiatry; public health, including hygiene; medical jurisprudence; obstetrics and gynecology; pediatrics; osteopathic principles, therapeutics, including pharmacology and materia media.

Part III is an oral and practical examination given under the supervision of a chief examiner who is a member of the Board and by a panel of associate examiners. Subjects covered in Part III are:

Specialty board examinations

Pathology examinations May 4-5 at Detroit Osteopathic Hospital. The practical and oral examinations will be given May 4, while the written examination will be given May 5. Address O. Edwin Owen, D.O., secretary, American Osteopathic Board of Pathology, Youngstown Osteopathic Hospital, 1319 Florencedale Ave., Youngstown 4, Ohio.



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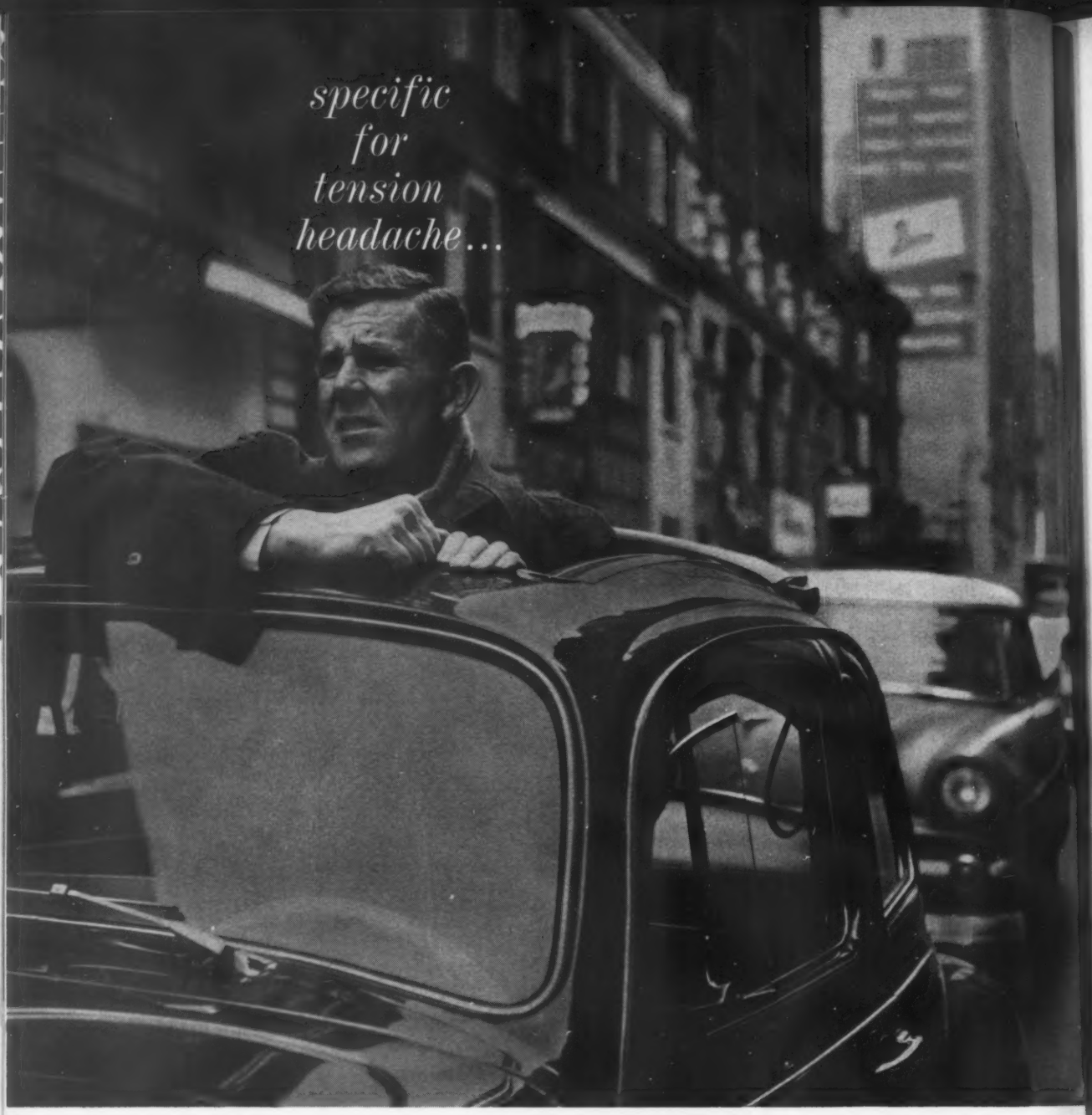

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Dosage: **1 or 2 tablets every 4 hours, according to need, up to 6 per day.**

SANDOZ

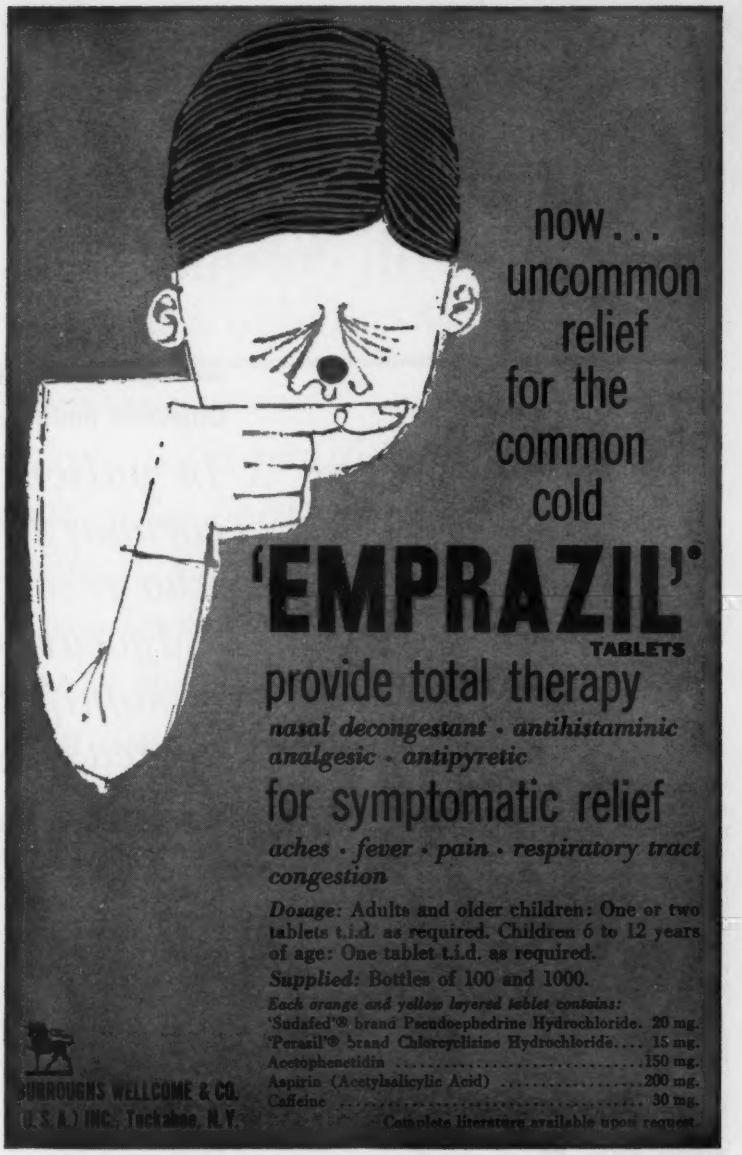
Sporadic animal rabies in Florida*

James E. Scatterday, D.V.M., Nathan J. Schneider, Ph.D., William L. Jennings, Ph.D., and Arthur L. Lewis, D.V.M.†

Isolated cases of rabies in dogs, house cats, foxes, raccoons, and skunks were investigated for clues to the existance of an inapparent reservoir of the disease.

Rabies in wildlife and domestic animals has been the subject of intensive study in Florida during the past 5 years. The State board of health laboratories examined 519 rabid animals of various species from 1951 through 1958, an average of 65 heads per year (table 1). In the preceding decade an average of 236 animals a year, mostly dogs, were found to be rabid. Vaccination and local quarantine have been credited with reducing the number of rabid animals encountered and have almost eliminated endemic rabies in dogs. With the gradual reduction of this disease in dogs and the evolution of an increasingly effective animal bite reporting procedure, the sporadic cases in wildlife have now assumed major importance in Florida.

When a careful field investigation revealed that only a single animal was infected, it was considered to be a sporadic case; that is, the rabid animal appeared to be isolated in time and space from all other rabies infections. This classification has been useful in guiding our search for evidence of possible repeated contacts with an inapparent reservoir of rabies in nature.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relief
for the
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cold
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TABLETS
provide total therapy
nasal decongestant · antihistaminic
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for symptomatic relief
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Dosage: Adults and older children: One or two tablets t.i.d. as required. Children 6 to 12 years of age: One tablet t.i.d. as required.
Supplied: Bottles of 100 and 1000.
Each orange and yellow layered tablet contains:
'Sudafed'® brand Pseudoephedrine Hydrochloride. 20 mg.
'Perazil'® brand Chlorcyclizine Hydrochloride.... 15 mg.
Acetophenetidin .....150 mg.
Aspirin (Acetylsalicylic Acid) .....200 mg.
Caffeine ..... 30 mg.
Complete literature available upon request.
BURROUGHS WELLCOME & CO. (U.S.A.) INC. Tuckahoe, N.Y.

TABLE 1. RABIES REPORTED IN FLORIDA, 1951-58

Species	1951	1952	1953	1954	1955	1956	1957	1958	Total
Dog	8	12	24	23	41	10	17	14	149
Cat	0	1	2	11	5	10	9	6	44
Fox	1	0	15	19	12	14	73	16	150
Raccoon	4	7	10	16	11	13	7	15	83
Skunk	0	1	1	2	1	0	2	2	9
Bat	0	0	7	1	8	10	7	7	40
Cattle	2	0	5	16	3	4	6	2	38
Bobcat	0	0	0	0	1	0	0	0	1
Horse	1	0	0	1	1	1	1	0	5
Total	16	21	64	89	83	62	122	62	519

*Reprinted from *Public Health Reports*, October 1960.

†Three of the authors are with the Florida State Board of Health. Dr. Scatterday is director of the division of veterinary public health, Dr. Schneider, director of the bureau of laboratories, and Dr. Lewis, head of the virology laboratory. Dr. Jennings is a biologist with the U.S. Fish and Wildlife Service, Department of the Interior.

This investigation was supported in part by a grant from the National Institutes of Health, Public Health Service.

Radioisotopic studies* shed new light on coronary artery disease...

Objective finding – in untreated patients:

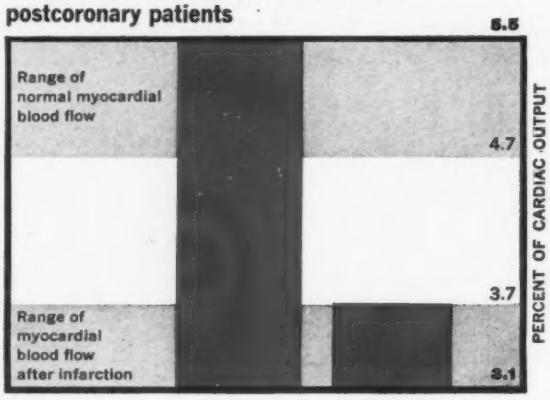
In patients with coronary artery disease who receive no therapy, "Myocardial blood flow is significantly... decreased...."[1]

***Important new studies**[1,2] at the University of Oklahoma School of Medicine utilized advanced radioisotopic techniques to measure myocardial blood flow in normal and arteriosclerotic humans.

The method consists of placing this specially designed scintillation detector on the chest wall where it can monitor the passage of radioactive material through the heart and through the myocardial circulation. The new technique appears to be ". . . simple, repeatable, rapid, and nontraumatic. . . ."[2]

The results objectively confirm earlier observations[3,4] that the significant increases in myocardial blood flow produced with PETN (Peritrate) in arteriosclerotic patients lasts as long as five hours after administration.

Myocardial blood flow in normal and postcoronary patients



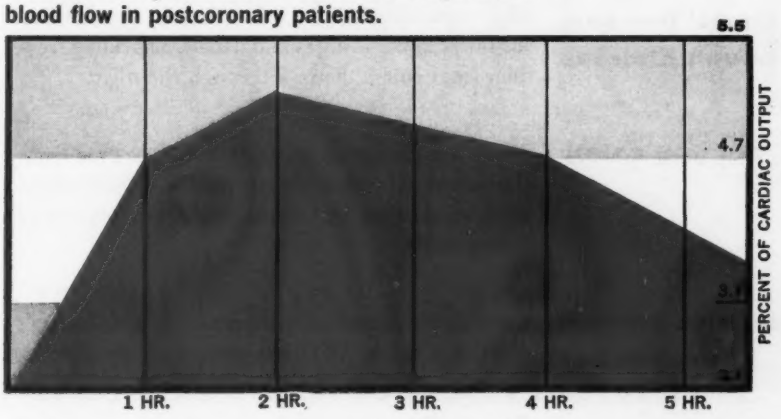
Normal myocardial blood flow ranges between 4.7 and 5.5% of total cardiac output. In patients with previous infarction, myocardial blood flow is significantly decreased to a range of 3.1 to 3.7%.

...reaffirm that Peritrate increases myocardial blood flow

Objective finding – in Peritrate-treated patients:

Peritrate "...produces a prolonged increase in myocardial blood flow beginning within one hour after ingestion and lasting up to five hours, without producing changes in cardiac output, in patients with arteriosclerotic heart disease with previous infarction."[1]

Peritrate safely increases and sustains myocardial blood flow in postcoronary patients.



Within one hour after administration of Peritrate 20 mg., myocardial blood flow returns to near normal range without significant change in cardiac output, blood pressure or pulse rate.

References: 1. Johnson, P. C., and Sevelius, G.: Measurement of myocardial blood flow, J.A.M.A. *173*:1231 (July 16) 1960. 2. Sevelius, G., and Johnson, P. C.: J. Lab. & Clin. Med. *54*:669 (Nov.) 1959. 3. Russek, H. I., *et al.*: Circulation *12*:169 (Aug.) 1955. 4. Essex, H. E., *et al.*: Am. Heart J. *19*:554, 1940.

basic therapy for coronary artery disease
—with or without angina

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brand of pentaerythritol tetranitrate

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PER GPO 10

as powerful as the narcotics in cough suppression... but much longer acting

NON-NARCOTIC

SYRUP

one teaspoonful affords 4 to 8 hours' freedom from cough distress

ULO maintains its maximal cough-suppressant effect undiminished for 4 to 8 hours, thus calling for fewer daytime doses and usually providing freedom from cough distress through the night.

notable safety

There are no known contraindications. Free from the undesirable side actions of narcotics. Side effects such as nausea and transient dizziness occur infrequently.

extensive clinical experience

Used in thousands of patients with acute cough from any cause, ULO has proved as effective as narcotics but superior to them in duration of action.

Write for Physicians' Reference Brochure with full bibliography.

For Children, too
Exceptionally well tolerated; no narcotic overlay; compatible with other indicated medications.

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Northridge, California

ANNOUNCING—
SPECIFICALLY FOR
INFECTIONS DUE TO
"RESISTANT" STAPHYLOCOCCI

AN ENTIRELY NEW SYNTHETIC
"STAPH-CIDAL" PENICILLIN

Staphcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

UNIQUE—BECAUSE IT
RETAINS ANTIBACTERIAL
ACTIVITY IN THE PRESENCE OF
STAPHYLOCOCCAL PENICILLINASES
WHICH INACTIVATE
OTHER PENICILLINS

Bristol™

NEW SYNTHETIC PENICILLIN FOR "RESISTANT" STAPH

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UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN

OFFICIAL PACKAGE CIRCULAR
November, 1960

STAPHCILLIN™

(sodium dimethoxyphenyl penicillin)

For Injection

DESCRIPTION

STAPHCILLIN is a unique new synthetic parenteral penicillin produced by Bristol Laboratories for the specific treatment of staphylococcal infections due to resistant organisms. Its uniqueness resides in its property of resisting inactivation by staphylococcal penicillinase. It is active against strains of staphylococci which are resistant to other penicillins.

Each dry filled vial contains: 1 Gm. STAPHCILLIN (sodium dimethoxyphenyl penicillin), equivalent to 900 mg. dimethoxyphenyl penicillin activity.

INDICATIONS

STAPHCILLIN is recommended as specific therapy only in infections due to strains of staphylococci resistant to other penicillins, e.g.:

Skin and soft tissue infections: cellulitis, wound infections, carbuncles, pyoderma, furunculosis, lymphangitis and lymphadenitis.

Respiratory infections: staphylococcal lobar or bronchopneumonia, and lung abscesses combined with indicated surgical treatment.

Other infections: staphylococcal septicemia, bacteremia, acute or subacute endocarditis, acute osteomyelitis and enterocolitis.

Infections due to penicillin-sensitive staphylococci, streptococci, pneumococci and gonococci should be treated with Syncillin® or parenteral penicillin G rather than STAPHCILLIN. Treponemal infections should be treated with parenteral penicillin G.

DOSAGE AND ADMINISTRATION

STAPHCILLIN is well tolerated when given by deep intragluteal or intravenous injection.

As is the case with other antibiotics, the duration of therapy should be determined by the clinical and bacteriological response of the patient. Therapy should be continued for at least 48 hours after the patient has become afebrile, asymptomatic and cultures are negative. The usual duration has been 5-7 days.

Intramuscular route: The usual adult dose is 1 Gm. every 4 or 6 hours. Infants' and children's dosage is 25 mg. per Kg. (approximately 12 mg. per pound) every 6 hours.

Intravenous route: 1 Gm. every 6 hours using 50 ml. of sterile saline solution at the rate of 10 ml. per minute.

**Warning:* Solutions of STAPHCILLIN and kanamycin should not be mixed, as they rapidly inactivate each other. Data on the results of mixing STAPHCILLIN with other antibiotics are being accumulated.

DIRECTIONS FOR RECONSTITUTION

Add 1.5 ml. sterile distilled water or normal saline to a 1 Gm. vial and shake vigorously. Withdraw the clear, reconstituted solution (2.0 ml.) into a syringe and inject. The reconstituted solution contains 500 mg. of STAPHCILLIN per ml. Reconstituted solutions are stable for 24 hours under refrigeration.

For intravenous use, dilute the reconstituted dose in 50 ml. of sterile saline and inject at the rate of 10 ml. per minute.

*This statement supersedes that in the Official Package Circulars dated September and/or October, 1960.

(continued)

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MICROBIOLOGICAL AND PHARMACOLOGICAL PROPERTIES

In vitro studies show that STAPHCILLIN is a bactericidal penicillin with activity against staphylococci resistant to penicillin G. Strains of staphylococci so far tested have been sensitive to STAPHCILLIN *in vitro* at concentrations of 1-6 mcg. per ml. These levels are readily attained in the blood and tissues by administration of STAPHCILLIN at the recommended dosage. This unique attribute is probably due to the fact that STAPHCILLIN is stable in the presence of staphylococcal penicillinase. STAPHCILLIN also resists degradation by *B. cereus* penicillinase. The antimicrobial spectrum of STAPHCILLIN with regard to other microorganisms is qualitatively similar to that of penicillin G; but considerably higher concentrations of STAPHCILLIN are required for bactericidal activity than is the case with penicillin G.

STAPHCILLIN is rapidly absorbed after intramuscular injection. Peak blood levels (6-10 mcg./ml. on the average after a 1.0 Gm. dose) are attained within 1 hour; and then progressively decline to less than 1 mcg. over a 4 to 6 hour period. It is poorly absorbed from the gastrointestinal tract. STAPHCILLIN is rapidly excreted by the kidney.

As shown by animal studies, STAPHCILLIN is readily distributed in body tissues after intramuscular injection. Of the tissues studied, highest concentrations are reached in the kidney, liver, heart and lung in that order; the spleen and muscles show lower concentrations of the antibiotic. STAPHCILLIN diffuses into human pleural and prostatic fluids, but its diffusion into the spinal fluid has not yet been completely studied. However, one patient with meningitis showed a significant concentration in his spinal fluid while on STAPHCILLIN therapy.

Toxicity studies with STAPHCILLIN and penicillin G in animals show that they have approximately the same low order of toxicity.

Certain staphylococci can be made resistant to STAPHCILLIN in the laboratory, but this resistance is not related to their penicillinase production. During the clinical trials, no STAPHCILLIN-resistant strains of staphylococci were observed or developed; the possibility of the emergence of such strains in the clinical setting awaits further observation.

PRECAUTIONS

During the clinical trials, several mild skin reactions, e.g., itching, papular eruption and erythema were observed both during and after discontinuance of STAPHCILLIN therapy. Patients with histories of hay fever, asthma, urticaria and previous sensitivity to penicillin are more likely to react adversely to the penicillins. It is important that the possibility of penicillin anaphylaxis be kept in mind. Epinephrine and the usual adjuvants (antihistamines, corticosteroids) should be available for emergency treatment. Because of the resistance of STAPHCILLIN to destruction by penicillinase, parenteral *B. cereus* penicillinase may not be effective for the treatment of allergic reactions. Information with regard to cross-allergenicity between penicillin G, penicillin V, phenethicillin (Syncillin) and STAPHCILLIN is not available at present. If superinfection due to Gram-negative organisms or fungi occurs during STAPHCILLIN therapy, appropriate measures should be taken.

SUPPLY

List 79502 — 1.0 Gm. dry filled vial.

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Division of Bristol-Myers Company

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NEW SYNTHETIC PENICILLIN FOR "RESISTANT" STAPH

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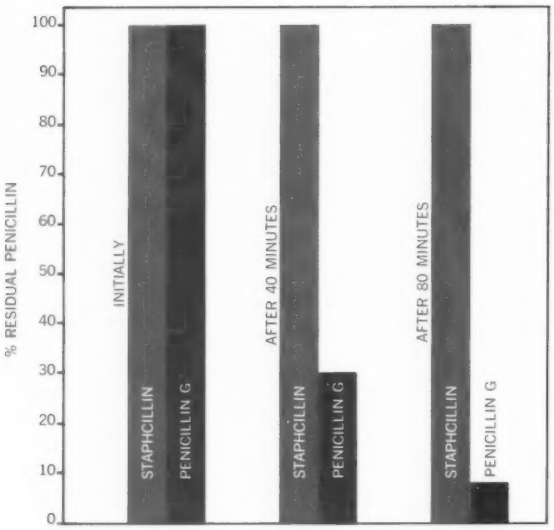
UNIQUE SYNTHETIC "STAPH-CIDAL" PENICILLIN



In the presence of staphylococcal penicillinase, STAPHCILLIN remained active and retained its antibacterial action. By contrast, penicillin G was rapidly destroyed in the same period of time. *(After Gourevitch et al., to be published)*

Specifically for "resistant" staph...

Staphcillin™

sodium dimethoxyphenyl penicillin
FOR INJECTION

The failure of staphylococcal infections to respond to penicillin therapy is attributed to the penicillin-destroying enzyme, penicillinase, produced by the invading staphylococcus.

Unlike other penicillins:

1 STAPHCILLIN is effective because it retains its antibacterial activity despite the presence of staphylococcal penicillinase.

2 The clinical effectiveness of STAPHCILLIN has been confirmed by dramatic results in a wide variety of infections due to "resistant" staphylococci, many of which were serious and life-threatening.

Like other penicillins:

STAPHCILLIN has no significant systemic toxicity. It is well tolerated locally, and pain or irritation at the injection site is comparable to that following the injection of penicillin G. *In occasional cases, typical penicillin reactions may be experienced.*

PROFESSIONAL INFORMATION SERVICE – The attached Official Package Circular provides complete information on the indications, dosage, and precautions for the use of STAPHCILLIN. If you desire additional information concerning clinical experiences with STAPHCILLIN, the Medical Department of Bristol Laboratories is at your service. You may direct your inquiries via collect telephone call to New York, PLaza 7-7061, or by mail to Medical Department, Bristol Laboratories, 630 Fifth Ave., N. Y. 20, N. Y.

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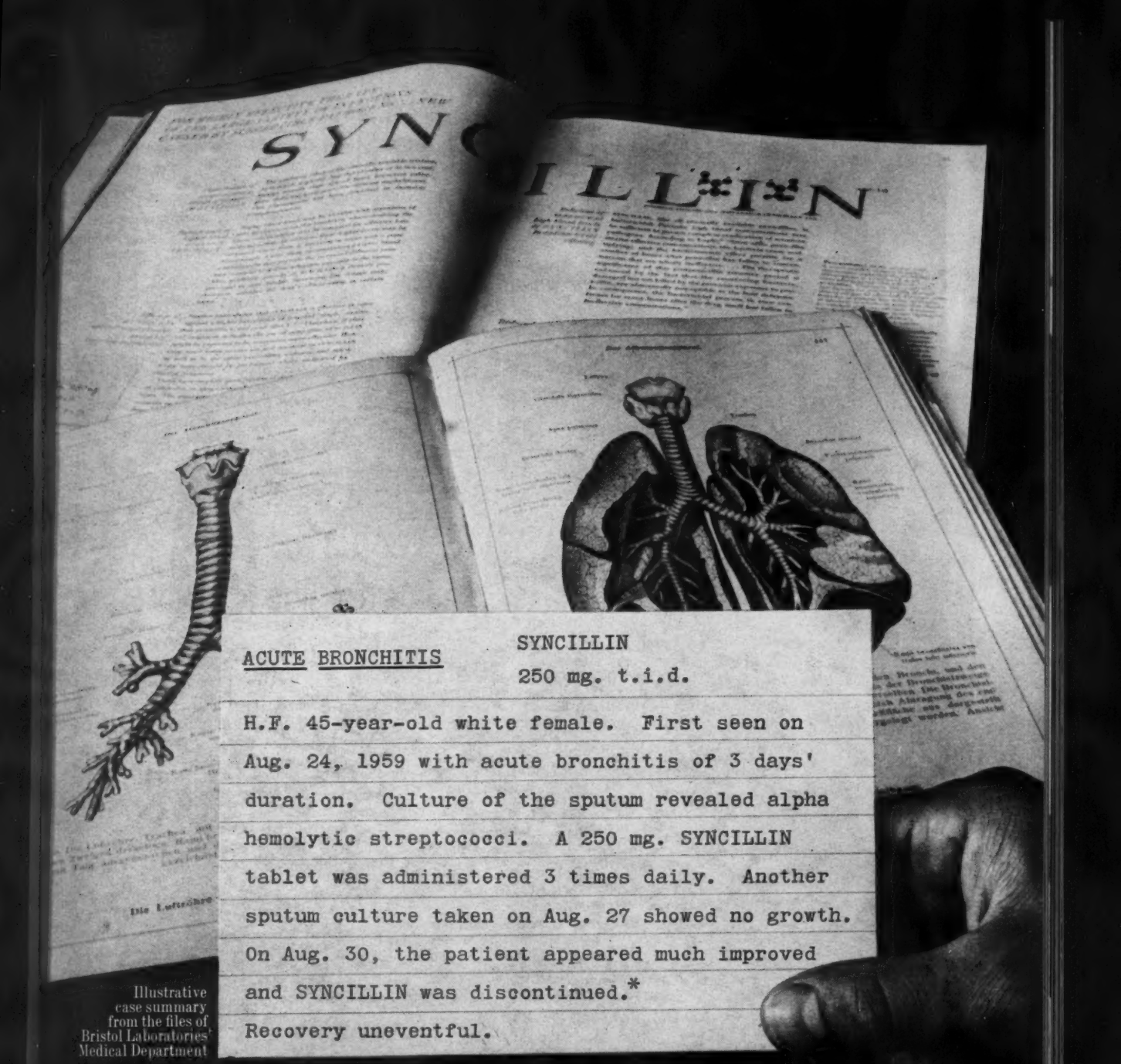


ACUTE BRONCHITIS — SYNCILLIN 250 mg. t.i.d.

H.F. 45-year-old white female. First seen on Aug. 24, 1959 with acute bronchitis of 3 days' duration. Culture of the sputum revealed alpha hemolytic streptococci. A 250 mg. SYNCILLIN tablet was administered 3 times daily. Another sputum culture taken on Aug. 27 showed no growth. On Aug. 30, the patient appeared much improved and SYNCILLIN was discontinued.*
Recovery uneventful.

Illustrative case summary from the files of Bristol Laboratories' Medical Department

THE ORIGINAL phenethicillin

SYNCILLIN®

(phenoxyethyl penicillin potassium)

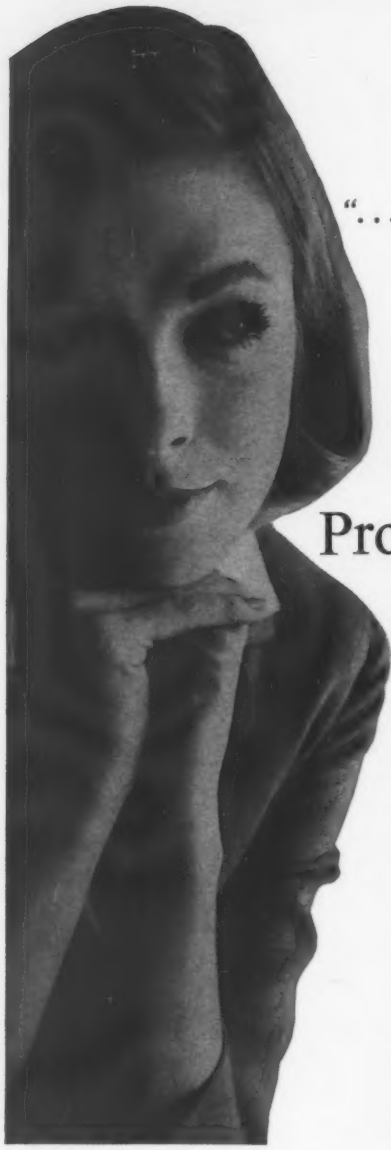
FIRST SYNTHESIZED AND MADE AVAILABLE BY BRISTOL LABORATORIES

A dosage form to meet the individual requirements of patients of all ages in home, office, clinic, and hospital:
Syncillin Tablets – 250 mg. (400,000 units)...Syncillin Tablets – 125 mg. (200,000 units)
Syncillin for Oral Solution – 60 ml. bottles – when reconstituted, 125 mg. (200,000 units) per 5 ml.
Syncillin Pediatric Drops – 1.5 Gm. bottles. Calibrated dropper delivers 125 mg. (200,000 units)

*Streptococcal infections should be treated for at least 10 days to prevent the development of rheumatic fever and as prophylaxis against bacterial endocarditis in susceptible patients.

Complete information on indications, dosage and precautions is included in the circular accompanying each package.

BRISTOL LABORATORIES, Div. of Bristol-Myers Co., SYRACUSE, N.Y.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to give you the answer promptly, even in the early weeks...
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50.00 mg. anhydrohydroxyprogesterone,
0.03 mg. ethinyl estradiol per tablet
As early as a week after the first missed period, the new, 3-day, oral PRO-DUOSTERONE test (4 tablets daily for 3 consecutive days) permits simple, physiologic diagnosis of pregnancy and secondary amenorrhea. In women menstruating regularly, PRO-DUOSTERONE accuracy approaches 100%[1] weeks before biologic tests for pregnancy can be considered accurate.
• If the patient is not pregnant, menstruation will occur within a few days after the administration of the PRO-DUOSTERONE test.
• If the patient is pregnant, no progesterone-induced withdrawal bleeding occurs, and the progestational action of PRO-DUOSTERONE may even help protect many pregnancies.
PRO-DUOSTERONE is available on your prescription. Bottles of 24 pink tablets. Literature on request.
1. Schwartz, H.A.: Editorial, Minnesota Medicine 42:1279, 1959.
Roussel Corporation, New York 17

The quest for such a reservoir was intensified after the infection was found to be widespread in insectivorous bats in Florida.[1,2] Examination of 5,503 bats[3] established the presence of rabies in apparently normal animals in all locations adequately studied in Florida. The evidence suggested that bats could be the inapparent rabies reservoir. Although on three occasions rabid bats were recovered from dogs and house cats which had captured them, there was no evidence that this contact spread the infection. Several attempts to infect mice in the laboratory by inducing presumably rabid bats to bite them were unsuccessful.

We undertook intensive investigations of sporadic cases of rabies to determine whether or not there existed an inapparent reservoir serving as a source for the spread of the infection in Florida.

Three hypotheses were suggested by the evidence at hand. First, there is the possibility that the bat, or some other equally elusive small mammal species, is the primary reservoir and may infect carnivores directly. In this event, the recognized vectors would be infected while capturing the reservoir species or when sniffing moribund animals that attracted their curiosity. The reservoir species would necessarily be unaggressive when rabid so as to explain its nonrecognition in the past. This theory may be called the nonaggressive, single-species reservoir.

Second, it is possible that some of our recognized vector species support enzootic rabies which goes undetected because of irregularities in surveillance or because of the usually benign behavior of rabid individuals. Thus, the enzootic condition would be discovered at infrequent intervals, and the new, recognized infections would appear to be sporadic cases. The true nature of the spread would go undetected.

A third possibility is that several different species of wild carnivores together maintain temporary transmission chains for enzootic rabies, but the patterns of transfer within a species or between species are not clear. This may be called the multispecies endemicity hypothesis.

Other explanations, such as the arthropod reservoir and various viral change hypotheses, have been suggested, but data in support of these are not conclusive. Evidence gathered in our studies implies that these two hypotheses are not necessary to account for the behavior and continued existence of rabies infection in Florida.

We undertook intensive investigations of rabies cases which appeared to be sporadic to determine whether or not there existed an inapparent reservoir serving as a source for the spread of infection in Florida. Data in several of the early cases were incomplete or could not be verified. Victims and witnesses could not be located in several instances. We gathered detailed accounts in more than 135 cases; 36 of these were considered to be sporadic.

All rabid animals were diagnosed in the laboratories of the Florida State Board of Health. A positive diagnosis was based on identification of Negri bodies in brain material prepared with modified Sellers' stain. Animal brains in which Negri bodies were not found upon direct examination were inoculated intracerebrally into five laboratory mice which were observed for 30 days. Mice dying within this period, or those sacrificed at the end of it, were examined microscopically. All animals referred to here as rabid yielded Negri bodies at some stage of this examination.

DOGS

Sporadic cases of rabies in domestic dogs were investigated whenever possible, but little was learned about contacts with a possible inapparent reservoir. Of the 149 rabid dogs reported since 1951, 34 infections occurred simultaneously with a fox rabies epizootic. Most of the remainder were exposures related to urban epizootics confined to dogs. All sporadic cases, with one exception, involved stray or ownerless dogs. Rarely was the owner of a rabid dog known, and details of its origin and recent history were usually not available. This lack of data made the attempted study of sporadic cases of rabies in dogs unproductive. In the search for rabies cases caused by contact with inapparent reservoirs,

HYDELTRA®-T.B.A.

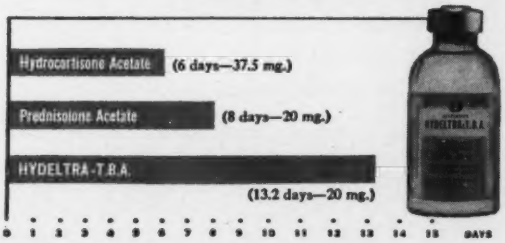
(Prednisolone *tertiary*-butylacetate, Merck)

for relief that lasts – longer

in *SPRAINS*–
reduces tenderness,
swelling and
limitation of motion

- Osteoarthritis
- Acute gouty arthritis
- Bursitis
- Tendinitis
- Trigger finger
- Peritendinitis
- Trigger points
- Tennis elbow
- Lumbosacral strain
- Capsulitis
- Rheumatoid arthritis
- Frozen shoulder
- Coccydynia
- Rheumatoid nodules
- Fibrositis
- Tensor fascia lata syndrome
- Collateral ligament strains
- Sprains
- Radiculitis
- Osteochondritis
- Ganglia

Anti-inflammatory effect lasts longer than that provided by any other steroid ester


Hydrocortisone Acetate
(6 days—37.5 mg.)
Prednisolone Acetate
(8 days—20 mg.)
HYDELTRA-T.B.A.
(13.2 days—20 mg.)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 DAYS

DOSAGE: the usual intra-articular, intra-bursal or soft tissue dose ranges from 20 to 30 mg. depending on location and extent of pathology.

SUPPLIED: Suspension 'HYDELTRA'-T.B.A. 20 mg./cc. of prednisolone *tertiary*-butylacetate, in 5-cc. vials.

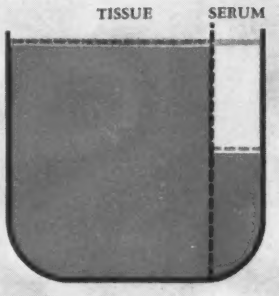
MSD

MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC.
PHILADELPHIA 1, PA.

FACTS ABOUT MER/29

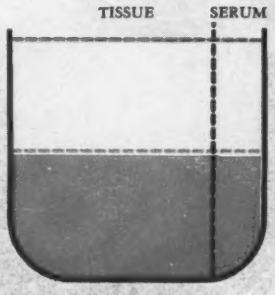
how MER/29 differs from other cholesterol-lowering measures . . .

effect on body pool of cholesterol



OTHER MEASURES

There is no evidence that tissue cholesterol is reduced even in the face of serum cholesterol reduction.



MER/29

Studies in patients have demonstrated a reduction of approximately 40% of *tissue* cholesterol, as well as a significant reduction of the *total* sterol pool.

. . . the first cholesterol-lowering agent to inhibit the formation of cholesterol within the body, reducing both tissue and serum cholesterol

. . . the only specific cholesterol-lowering agent: no demonstrable interference with other vital biochemical processes reported to date; toleration and absence of toxicity established by more than 2 years of clinical investigation

. . . convenient dosage: one 250 mg. capsule daily before breakfast

...and how these differences can benefit your patients

particularly those with high cholesterol levels, coronary artery disease, and generalized atherosclerosis

MER/29 REDUCES CHOLESTEROL IN 8 OUT OF 10 PATIENTS: MER/29 reduces both serum and tissue cholesterol, *irrespective of diet.* Although some physicians prefer to use MER/29 in conjunction with controlled diets, cholesterol can be reduced successfully without such limitation.

CONCURRENT BENEFITS REPORTED IN SOME PATIENTS: In angina patients, some of the concurrent benefits reported include decreased incidence and severity of attacks, improved ECG patterns, diminished nitroglycerin dependence, and increased sense of well-being.

DIRECT, SPECIFIC CHOLESTEROL-LOWERING ACTION WITH MER/29: Some agents used to reduce cholesterol have other important primary effects — such as hormonal or vasodilator action. The primary, the *only* known function of MER/29 is to reduce cholesterol.

MER/29 HAS PRODUCED FEW SIDE EFFECTS, NO TOXICITY: Patients have been treated with MER/29 for continuous periods up to 19 months. In no case has there been evidence of serious toxic effects on the function of any vital organ or system. Side effects (nausea, headache, dermatitis) are rare and have usually been associated with dosages greater than those recommended for effective therapy. MER/29 is compatible with other cardiovascular therapies. It can be used along with measures which control anxiety, hypertension, obesity, and other conditions associated with cardiovascular disorders. These include nitroglycerin and PETN, and there have been no reports to date of incompatibility with anticoagulants.

CAUTION: Since long-term MER/29 therapy may be necessary, periodic examinations, including liver-function tests, are desirable. Also, since MER/29 inhibits cholesterol biosynthesis, and cholesterol plays an important role in the development of the fetus, the drug is contraindicated in pregnancy.

SUPPLIED: Bottles of 30 pearl gray capsules.

Complete bibliography and product information available on request.

MER/29

(triparanol)

Merrell SINCE 1828

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Division of Richardson-Merrell Inc.
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Put your low-back patient back on the payroll

Soma's prompt relief of pain and stiffness can get your low-back patients back to work in days instead of weeks

Soma is unique because it combines the properties of an effective muscle relaxant and an independent analgesic in *a single drug.* Unlike most other muscle relaxants, which can only relax muscle tension, Soma attacks both phases of the pain-spasm cycle at the same time.

Thus with Soma, you can break up both pain and spasm fast, effectively . . . help give your patient the two things he wants most: relief from pain and rapid return to full activity.

Soma is notably safe. Side effects are rare. Drowsiness may occur, but usually only with higher dosages. Soma is available in 350 mg. tablets. Usual dosage is 1 tablet q.i.d.

The muscle relaxant with an independent pain-relieving action

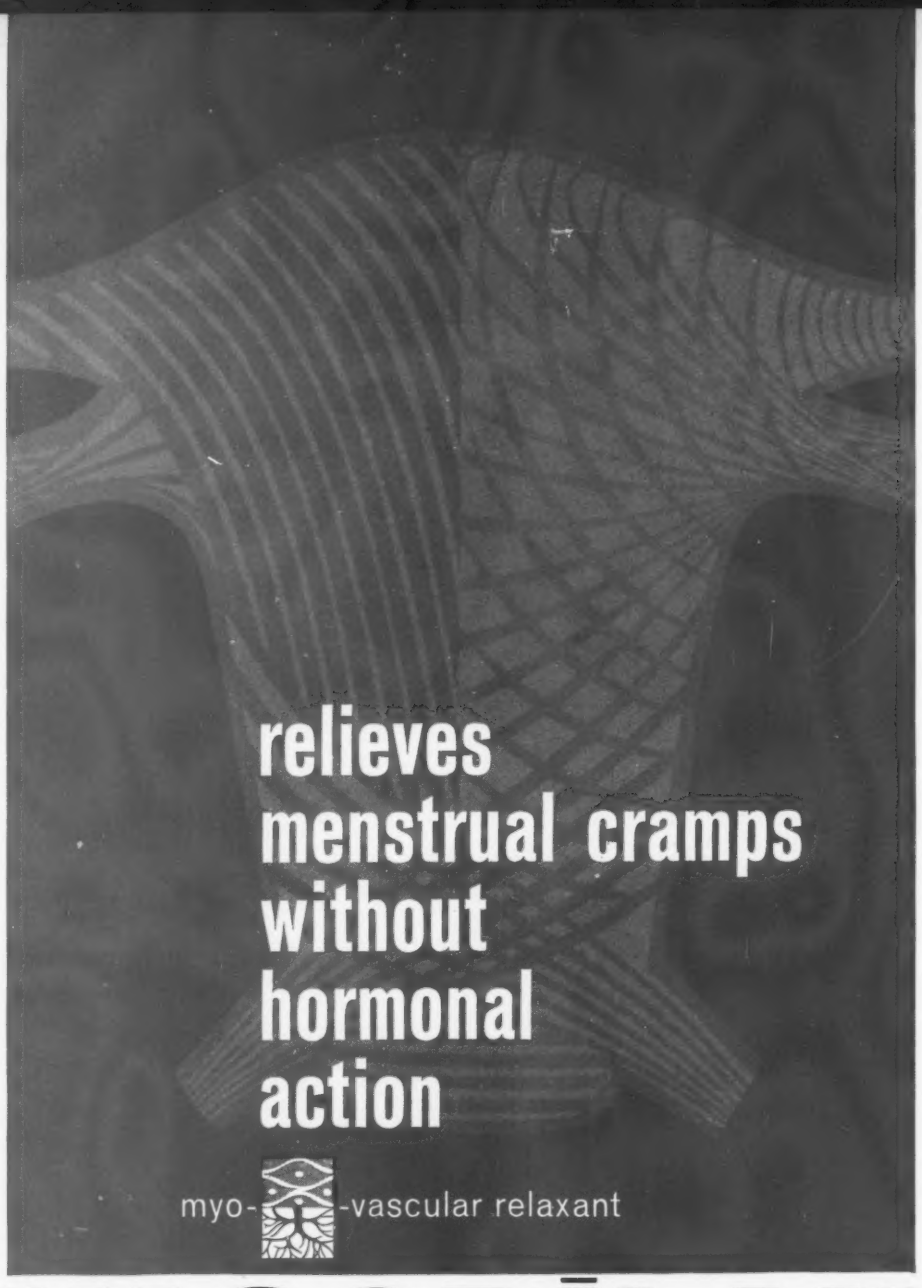
SOMA®

(carisoprodol, Wallace)

Wallace Laboratories, Cranbury, New Jersey

How you can help save your patients a month's pay

Kestler reports in J.A.M.A. (April 30, 1960) that conventionally treated low-back syndrome patients required an average of 41 days for full recovery (range: 3 to 90 days). The addition of Soma therapy in this comparative investigation reduced the average to 11.5 days (range: 2 to 21 days). With Soma, patients averaged full recovery 30 days sooner.



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Isoxsuprine hydrochloride, Mead Johnson

relieves uterine spasm and hypermotility by *direct* relaxant action on uterine muscle*

proved effective clinically with a low incidence of side effects*

dosage: For menstrual cramps, give 10 or 20 mg. (1 or 2 tablets) three or four times daily 24 to 72 hours prior to expected onset of menstruation. Continue until pain has been averted.

supplied: 10 mg. tablets, bottles of 100; 2 cc. ampuls (5 mg./cc.) for *intramuscular* use, boxes of 6.

*Voulgaris, D. M.: Obst. & Gynec. *15*:220-222 (Feb.) 1960.

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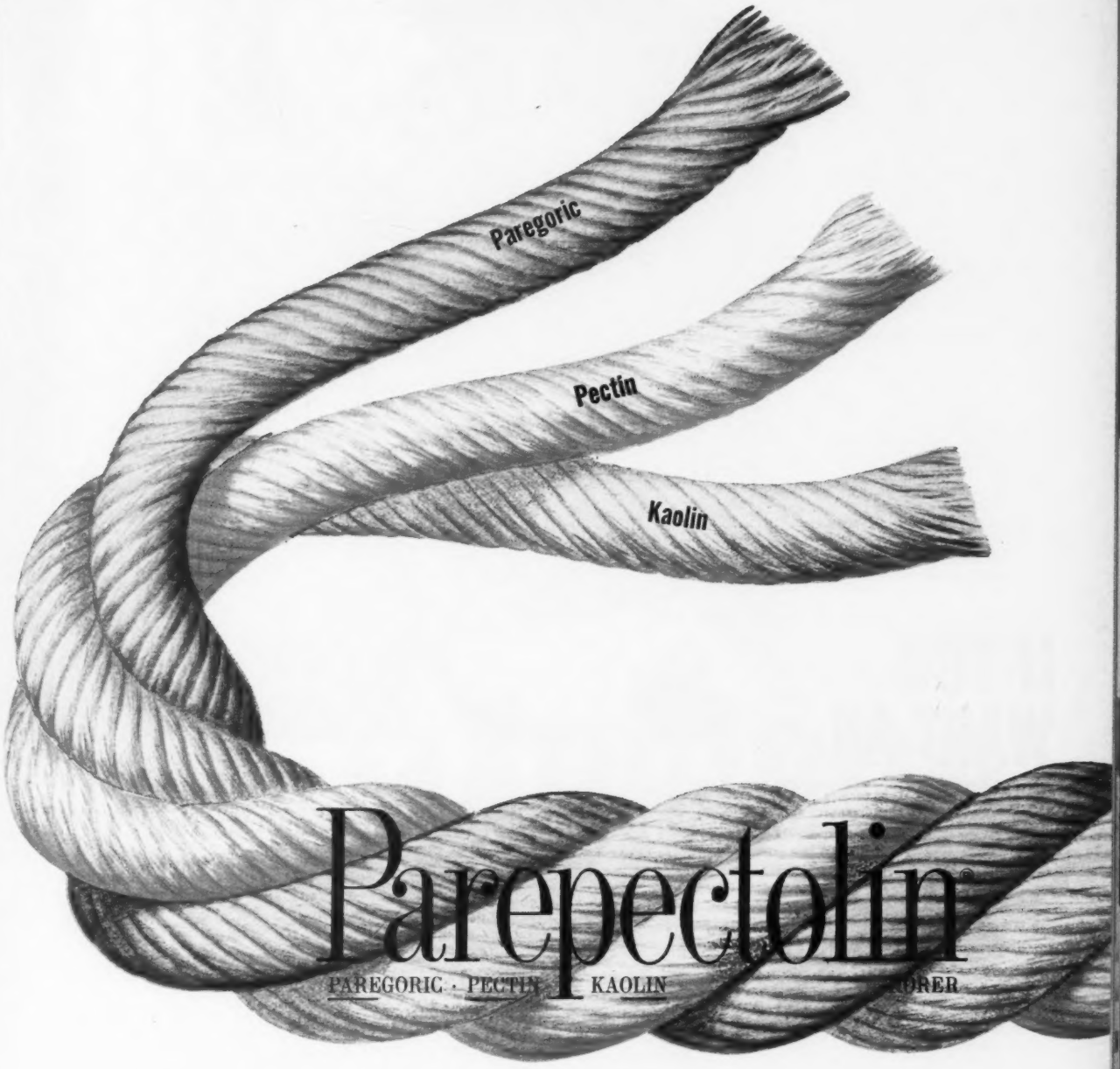
Symbol of service in medicine

to **CONTROL DIARRHEA**...the traditional and time-tested triad of effective and safe agents



Pleasant taste *plus* predictable, prompt response in diarrhea

Parepectolin combines paregoric, pectin, kaolin in *a balanced, stable colloidal suspension*, with a smooth, creamy consistency and a pleasant, mildly aromatic flavor. Parepectolin is compatible with antibiotics, and retains its uniform consistency and its good flavor.

Parepectolin; each fluid ounce—Paregoric (equivalent) 1.0 dram, Pectin 2.5 gr., Kaolin (specially purified) 85 gr. Bottles of 4 and 8 fluid ounces.

RORER | WILLIAM H. RORER, INC. PHILADELPHIA, PENNSYLVANIA

IF YOU WANT AN ANTIMICROBIAL:

1. With outstanding effectiveness

Reported effectiveness of Madribon registers up to 90 per cent in a large variety of respiratory, urinary tract and soft tissue infections. Madribon proves effective against the following pathogens, including at times some strains resistant to older antimicrobial agents: Staphylococcus aureus hemolyticus, beta hemolytic streptococci, pneumococci, K. pneumoniae, H. influenzae, Ps. aeruginosa, B. proteus, E. coli, salmonella and paracolon bacilli.[13,37,50]

2. With a remarkable safety record

In extensive clinical studies, Madribon has accumulated an unexcelled safety record. The total incidence of side reactions with Madribon lies below 2 per cent; those that have occurred were generally mild and transitory. Unlike other sulfonamides, Madribon is excreted in the urine primarily as a highly soluble glucuronide which minimizes crystalluria and renal damage.

3. That need be given only once a day

An initial dose of Madribon quickly produces peak concentrations in the blood, which are maintained at a high level over a prolonged period of time.

4. Which is "kind to the purse"

Prompt response and a low cost-care ratio make Madribon truly economical therapy.

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DOSAGE (Tablets and Suspension)

For severe infections:

Adults: 4 tablets or 8 teaspoonfuls (2 Gm) initially followed by 2 tablets or 4 teaspoonfuls (1 Gm) daily thereafter.

Children:

Body Weight	Initial Dose	Daily Dose Every 24 Hours Thereafter
20 lbs	1 tablet or 2 teaspoonfuls (0.5 Gm)	½ tablet or 1 teaspoonful (0.25 Gm)
40 lbs	2 tablets or 4 teaspoonfuls (1 Gm)	1 tablet or 2 teaspoonfuls (0.5 Gm)
80 lbs	4 tablets or 8 teaspoonfuls (2 Gm)	2 tablets or 4 teaspoonfuls (1 Gm)

DOSAGE (Pediatric Drops)

For moderate to severe infections:

2 drops (25 mg) per pound body weight followed by 1 drop (12.5 mg) per pound body weight daily thereafter.

Continue therapy for 5 to 7 days or until patient is asymptomatic for at least 48 hours.

For mild infections: Less severe infections will usually respond to one-half the above dosage.

CAUTION: The usual precautions in sulfonamide therapy should be observed, including the maintenance of an adequate fluid intake. In the event of headache, nausea, vomiting, urticaria, rash, fever or hematuria, the use of the drug should be discontinued. When Madribon is used intermittently or for prolonged periods, blood counts should be performed to determine whether blood dyscrasias have occurred. The use of the drug should be stopped immediately if alterations in the hematopoietic system are observed. Patients with impaired renal function should be followed closely since renal impairment may cause excessive drug accumulation. Madribon should not be administered to patients with a history of adverse reactions to sulfonamide therapy.

Madribon, like most sulfonamides and certain other drugs, is probably contraindicated in premature infants—and newborn infants for the first week of life—because of underdeveloped enzyme systems and immature liver and renal functions.

As a service to the prescribing physician, above is a complete statement of dosage, side effects and precautions as set forth in the basic product literature.

PACKAGES: Madribon Tablets: 0.5 Gm, double-scored, monogrammed, gold colored—bottles of 30, 100, 250, and 1000. Madribon Suspension: 0.25 Gm/teasp. (5 cc), custard flavored—bottles of 4 oz and 16 oz. Madribon Pediatric Drops: 250 mg/cc (20 drops)—10 cc bottle with drop-dispensing tip.

CHANGE TO MADRIBON

MADRIBON® — 2,4-dimethoxy-6-sulfanilamido-1,3-diazine

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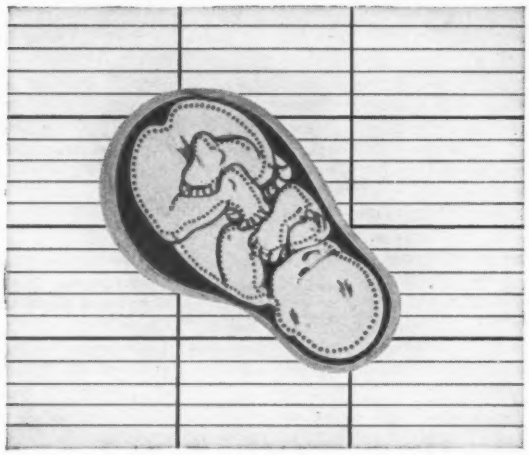
now in threatened premature delivery

Dactil®-OB

Brand of piperidolate hydrochloride, hesperidin complex and vitamin C

prolongs gestation / increases fetal survival rate



no intolerance / no endocrine disturbance / reduces need for bed rest

In a study of 618 pregnancies over a period of 4 years, premature births were reduced from 13.1% of 168 patients without Dactil to 4.7% of 450 patients with Dactil.* In the treated patients birth weights were increased.

Dosage: 1 tablet q.i.d. from the beginning of pregnancy in any patient with a history of previous difficulty. For more information send for Dactil-OB brochure.

*Stephens, L. J.: The Prevention of Premature Delivery, presented at the Pacific Coast Fertility Society, Las Vegas, Nevada, November 15, 1959.

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LAKESIDE

What's she doing that's of medical interest?

She's drinking a glass of pure Florida orange juice. And that's important to her physician for several reasons.

How your patients obtain their vitamins or any of the other nutrients found in citrus fruits is of great medical interest—considering the fact there are so many wrong ways of doing it, so many substitutes and imitations for the real thing.

Actually, there's no better way for this young lady to obtain her vitamin C than by doing just what she is doing, for there's no better source than oranges and grapefruit ripened in the Florida sunshine. There's no substitute for the result of nature's own mysterious chemistry, flourishing in the warmth of this luxurious peninsula.

An obvious truth, you might say, but not so obvious to the parents of many teen-agers.

We know that a tall glass of orange juice is just about the best thing they can reach for when they raid the refrigerator. We also know that if you encourage this refreshing and healthful habit among your young patients — and for that matter, your patients of any age — you'll be helping them to the finest between-meals drink there is.

Nothing has ever matched the quality of Florida citrus—watched over as it is by a State Commission that enforces the world's highest standards for quality in fresh, frozen, canned or cartoned citrus fruits and juices.

That's why the young lady's activities are of medical interest.

©Florida Citrus Commission, Lakeland, Florida

in arthritis...
maximum salicylate benefit
around the clock–day after day–
with t.i.d. dosage of

PERSISTIN®

unique formula combines both slow absorption salicylates and fast absorption salicylates for prolonged and immediate effectiveness

PERSISTIN®

Each tablet contains:

Salicylsalicylic acid 7½ gr. (480 mg.) for delayed effects
Acetylsalicylic acid 2½ gr. (160 mg.) for prompt effects

The timed-absorption characteristics of the salicylates in the Persistin formula permit the convenience of t.i.d. dosage to provide 24-hour salicylate effects for the arthritis patient—thus affording pain relief and salicylate benefit on a day-long and night-long basis.

Usual dosage: One Persistin tablet on arising, one eight hours later and two before retiring. Virtually free of gastric distress.

Supplied: Bottles of 50 scored, uncoated tablets.

REFER TO PDR
PAGE 813

Sherman Laboratories
Detroit 11, Michigan

little progress can be expected from studies of sporadic infection in dogs.

However, one case had an interesting history. The head of a rabid puppy about 4 months old was submitted to the State laboratory from a subdivision in Gainesville in April 1958. The puppy had been born in a nearby subdivision, and all dogs with which it had had contact, including littermates and the mother, were accounted for. After leaving the litter, the puppy had been housed in a utility room every night and had never had noticeable wounds. It was seen by a veterinarian several times during this period but was not immunized against rabies. No other animals became rabid during 90 days of quarantine observed by the subdivision.

It seemed unlikely that a rabid dog, skunk, fox, or raccoon could have passed through the subdivision, which was heavily populated with children and unvaccinated dogs, without attracting attention or infecting another animal. Inspection of the utility room indicated that such a vector would have had to contact the puppy outdoors in the daytime. During the previous year three rabid bats had been collected within a mile of this subdivision.

HOUSE CATS

Forty-four house cats from all parts of the State were recorded as being rabid during the 1951-58 period, and persons who had been attacked by 29 of these were interviewed. Fourteen rabid house cats were reported concurrently with several fox rabies epizootics in western Florida, and at least three of these cats had been bitten severely shortly before exhibiting symptoms of rabies. Presumably, fox rabies spilled over into the house cat, since no rabid cats were observed in the years before or after fox rabies swept through these counties. All of them bit or attacked human beings, but no other cats or domestic animals. This behavior, as reported by the victims, indicated that house cats do not transmit rabies virus freely among themselves.

Twenty-one cats became rabid in peninsular Florida, where epizootic rabies has apparently been limited to infection in raccoons, which probably attack house cats. However, most of these counties have recorded sporadic rabies in other carnivores. Epidemiological investigations of rabies in house cats failed to reveal evidence of the disease in any other animal. Every rabid house cat in the peninsular counties investigated appeared to have acquired a truly sporadic infection.

Some of these cases may have resulted from contact with a hidden rabies reservoir. Data on rabid kittens obtained in interviews with owners were especially enlightening. Nine cases of rabies occurred in kittens less than 7 months of age. None of the mother cats or other neighborhood pets became rabid or had disappeared. The lifespans and dates of death of the kittens varies in counties from north-to-south. There is some indication of a winter trend in seasonal appearance of infection toward the south.

In two cases the behavior of the vector was indicated because the kittens had had been confined in screened dwellings all of their lives. One case occurred in May 1956 in the heart of Lakeland, Polk County, within a section of small, closely spaced houses. Two 6-week-old kittens were being weaned by the healthy mother cat after having lived on a screened porch since birth. The owner was reasonably sure that neither kitten had been off the porch, although a daughter may have carried them out for short periods once or twice. The rabid kitten bit the child and died a few hours later. The owner had been scratched a few days before. Evidence of rabies was found when brain tissue from the kitten was injected intracerebrally into mice and the virus was isolated by standard methods.

The littermate and three adult cats belonging to the same owner were healthy at that time. Wounds had never been observed on either kitten. The littermate died of some disease while in quarantine, but rabies virus could not be isolated from it. No other cases of rabies were reported from this area that year. Two years earlier and less than a half mile away, a rabid 3-week-old kitten, one of a litter of three or four belonging to a stray mother, bit a child. It was known that the mother cat had brought rats and

important new therapy in Peptic Ulcer

cessation of all symptoms and complete healing in 70 out of 78 cases as reported in Postgraduate Medicine (Oct.) 1959

"... chymotrypsin offers a new approach to the treatment of peptic ulcer."

In 54 cases, most of them hospitalized, in which chymotrypsin (Chymar) was used in conjunction with other agents "All of the symptoms disappeared and *complete healing of* the ulcer occurred in 49 (90.7 per cent) of the 54 cases . . . " Average time for cessation of symptoms . . . 6 days; for complete healing . . . 36 days; average follow-up period . . . 12 months. *In 24 cases* in which Chymar was used alone, "Cessation of all symptoms and *complete healing occurred in 21 (87.5 per cent)* of the 24 cases . . ." Average time for cessation of symptoms . . . 5.8 days; for complete healing . . . 24 days; average follow-up period . . . 25.5 months.

Conclusions: "Because of the excellent results obtained in 78 cases of peptic ulcer . . . I strongly recommend its use as a most valuable adjunct in the treatment of this disease."*

*Mozan, A. A.: Postgraduate Med. 26:542, 1959

the superior anti-inflammatory enzyme

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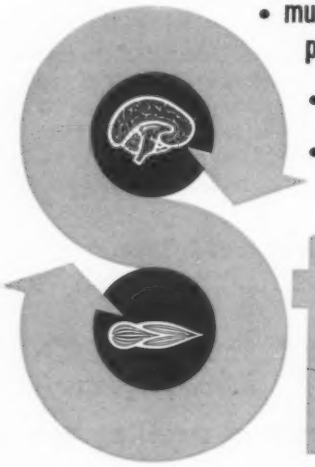

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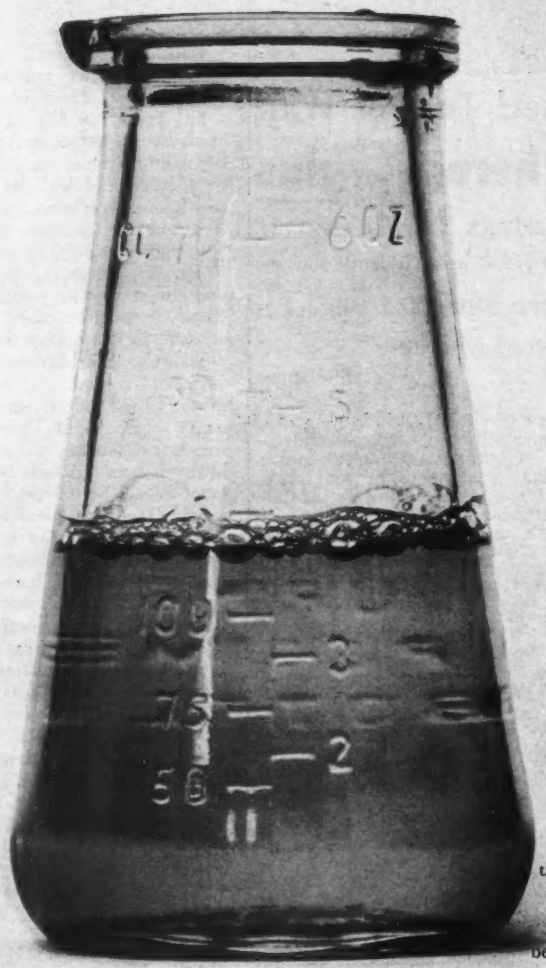

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mice to the kittens. Lakeland is noted for the large number of yellow bats (*Dasypterus floridanus*) collected in town.[1] This bat has been found to have an infection rate of about 2 percent in nature and is one of the most powerful biters among Florida bats.

A similar case occurred in West Palm Beach during April 1958. Two kittens from a litter of three died of rabies at an age of 6 or 8 weeks. These kittens were born and reared inside a screened house and left it only once, when a visiting child played with them on the lawn one morning for about an hour. The owners were certain that the kittens never left the house at any other time before they were adopted. All three went to separate homes and one developed symptoms of rabies about a week later. The other two kittens were recovered and quarantined, one dying of rabies 17 days after quanantine. The third kitten was killed and examined, but no evidence of rabies was found. The mother cat was healthy 8 months later and was described as a wonderful hunter. She had often brought in living rats and mice with which the kittens played; however, no bats were observed among the offerings.

Six other cases of rabies in kittens were investigated and found to follow this general pattern. These kittens had all spent more time outdoors, and some had never been in a house. Three of them were less than 6 weeks old. None of these kittens showed any evidence of a bite or wound. The wounds usually observed on victims of dogs, raccoons, and some foxes would kill a kitten of this size outright, and certainly could not be overlooked in the usual attention given to pets.

The data from these interviews suggest some small animal as a reservoir, perhaps one brought to kittens by mother cats and used in hunting practice. A study of the mammals used in this way is indicated. Rabies has not been reliably reported from native rats and mice in Florida, though only a few dozen of these have been examined carefully. We have observed cats use moribund and rabid bats as practice game on several occasions.

FOXES

Data on fox rabies in Florida are presented in another paper[4] and are summarized here. There was no clear seasonal trend in the sporadic cases. Sporadic infections were not reported from the epizootic fox rabies areas along the Georgia and Alabama borders, where two known epizootics occurred in adjacent areas of the three States.

In the peninsular counties of Florida, which are distinct from the epizootic area in geography, ecology, and economy, 18 sporadic cases of rabies have occurred in foxes since 1951. Two other rabid foxes, near Pensacola in Escambia County, were not correlated with other rabies cases and appeared to be sporadic. Since rabid foxes are reported frequently during epizootics, it is unlikely that an epizootic in the fox population would be unreported in peninsular counties such as Alachua, Marion, and Polk, where reporting is as effective as in the counties with epizootics. The fox epizootics discussed here swept through 13 or 14 counties in one movement, requiring more than 5 years to subside. In areas with sporadic fox rabies, cases of rabies in cattle are unkown, but they are common where rabid foxes occur in numbers. Our data indicate that rabies is easily recognized when it exists in epizootic form in gray foxes. The preponderance of evidence suggests that sporadic cases are caused by an effective contact with an inapparent reservoir. However, additional data are needed on the proportion of rabid foxes which attack people as compared with those which do not.

RACCOONS

Rabies was first recorded in Florida raccoons about 1947 when it appeared in Brevard County and spread north and south along the Intracoastal Waterway. By 1958, a total of 31 counties had reported rabid raccoons, most of them occurring as a sporadic case. The 83 recorded since 1951 were investigated whenever victims and witnesses could be located. The disease in raccoons is restricted to the peninsular part of the State. Even during fox epizootics, rabid

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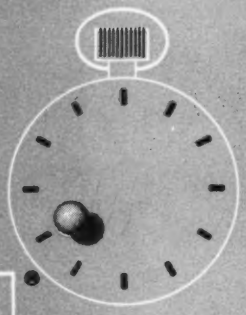

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References: 1. Recent compilation of case reports received by the Medical Department, White Laboratories, Inc. 2. Ernst, E. M.: Clin. Med. (in press). Additional bibliography: Ayd, F. J., Jr.: Current Therap. Res. 1:41, 1959. Bodi, T., et al.: Clin. Res. 8:72, 1960. Dunlop, E.: Personal communication. Grimaldi, R.: Presented at Annual Congress of Pan-American Medical Association, May 6, 1960, Mexico City. Olson, J., and Carsley, S. H.: Personal communication.

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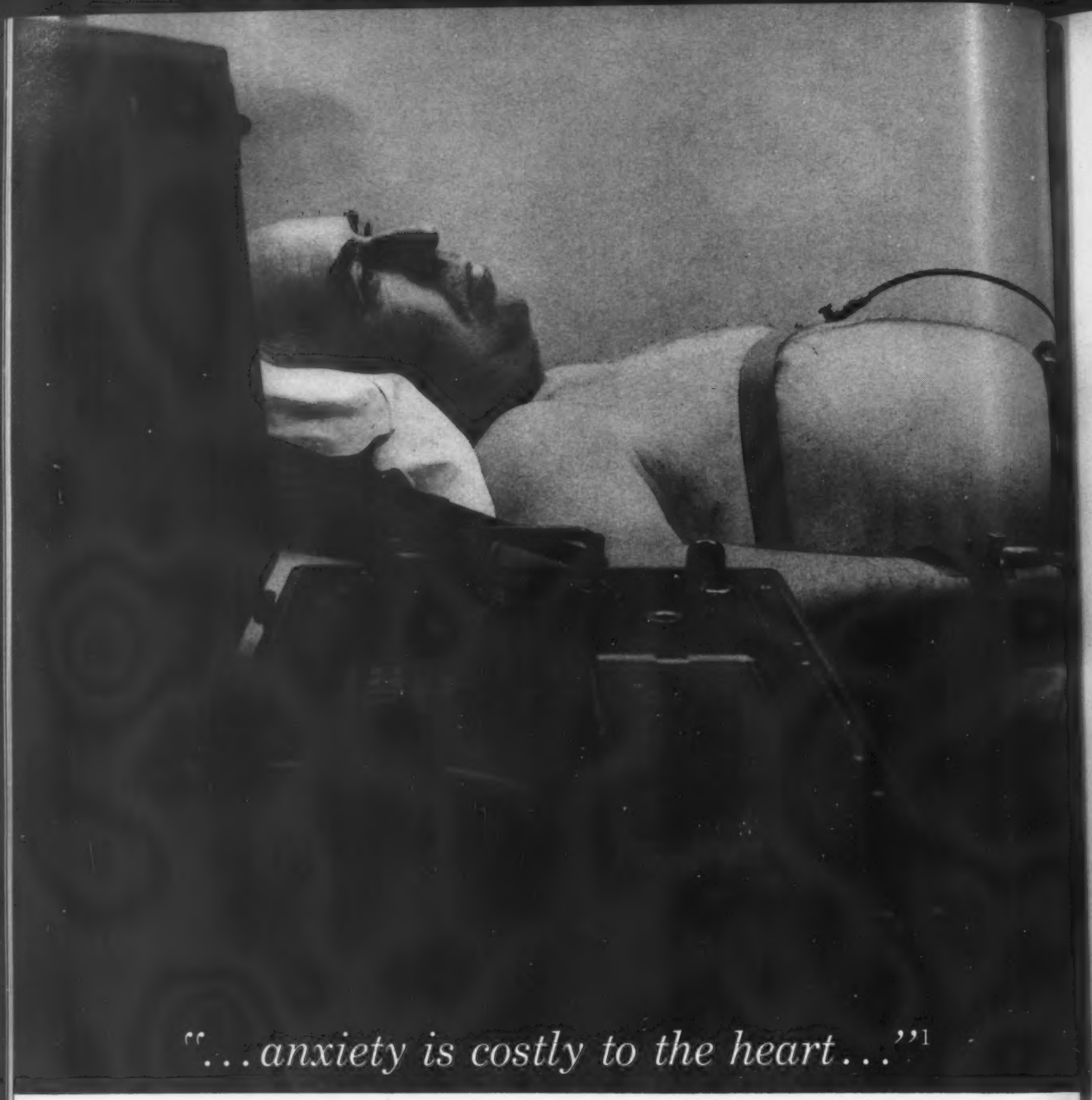
*Kinross-Wright, J.: Newer phenothiazine drugs in treatment of nervous disorders, J.A.M.A. 170:1263, July 11, 1959.



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Wyeth Laboratories Philadelphia 1, Pa.

1. Waldman, S., and Pelner, L.: Am. Pract. & Digest Treat. 8:1075 (July) 1957.
2. Friedlander, H.S.: Am. J. Cardiology 1:395 (March) 1958.

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raccoons were never reported from western Florida. There was no seasonal trend in the occurrence of the 47 cases on which data were available.

Estimates of the raccoon population in 11 sites where rabid raccoons had most recently been reported revealed no clear correlation between the appearance of the infection and density of the raccoon population. In five sites the local populations appeared to be at cyclic lows; in three, at nearly maximal density; and in the remaining three, the density was intermediate. These investigations revealed the short duration of extremes of abundance in raccoon populations, as evidenced by trapping success, tracks, and other signs. Movements and seasonal shifts in response to changes in water levels and seasonal food supplies influenced simple abundance estimates even more than the absolute number of animals in a unit area. It proved almost impossible to trap out a raccoon population, even when intensive efforts were made for more than a month. This is in strong contrast to fox populations, in which a reduction in tracks and in trap success is apparent after a few days of trapping.[5]

A time and space relationship was found between rabid raccoons reported from the counties along the Withlacoochee-Hillsboro River system (midwest coastal area) and along the Intracoastal Waterway from Miami to Jacksonville. These movements showed a strong correlation between raccoon rabies and the water; 40 of the 43 animals investigated were first observed within 3 miles of a major stream or waterway. Most of them were taken along the waterways. The data indicate that spread of rabies through raccoon populations follows major waterways. The slow rate of movement and the inapparent nature of the infection make us reluctant to term this an epizootic spread, however.

The apparent sporadicity of reports seems to be caused by the unaggressive nature of rabid raccoons, according to witnesses and victims. In 38 incidents, not one person indicated that the raccoon had attacked persons or dogs unless a close approach was followed by an overt act by the victim. People were usually bitten when they or their dogs tried to kill or capture raccoons that wandered, often obviously sick and in daylight, into doorways or along streams and highways. Victims "knew" something was wrong in some cases but were vague as to how they "knew." At least five of these animals were thought to be escaped pets, and three of them were put in cages because of their gentle behavior. Two were kept as pets for several days, and their captors suspected rabies only after the animals were found dead.

Two fishermen allowed a fearless and obviously distressed raccoon to pass between them and the river in which they were fishing without being attacked. When the animal passed a second time under their cane poles, they decided to capture and submit it for laboratory examination. This uniformly benign behavior is startling when first observed by anyone familiar with the viciousness of a significant portion of rabid dogs and foxes, which attack from considerable distances.

Six of the twenty-eight raccoons taken in traps or found dead on highways in Palm Beach County by J. E. Held, D.V.M., in 1956, were rabid. Despite this evidence of a severe localized epizootic, no attacks were reported from the area, although large numbers of people fished and picnicked along the highways and canals in this part of the Everglades. Reports of cattle and other livestock dying of rabies were rare in the raccoon rabies area, in marked contrast to the situation in parts of the State where dog or fox epizootics occurred. If raccoons are no more aggressive toward each other than they were toward the victims interviewed in this study, it is difficult to understand how the infection can be maintained in the raccoon population. Our observations on prevalence and geographic movement suggest that enzootic spread of rabies does occur in raccoons.

Unaggressive behavior did not mean that raccoons were not a serious rabies problem. On the contrary, an average of nine persons per year were bitten in Florida. Often such persons were so severely and painfully bitten they needed

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**Lewis, et al.: Pediat. *5*:425

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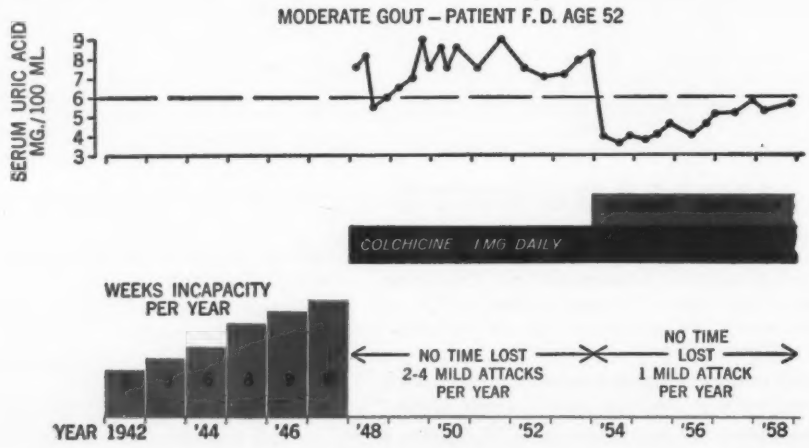

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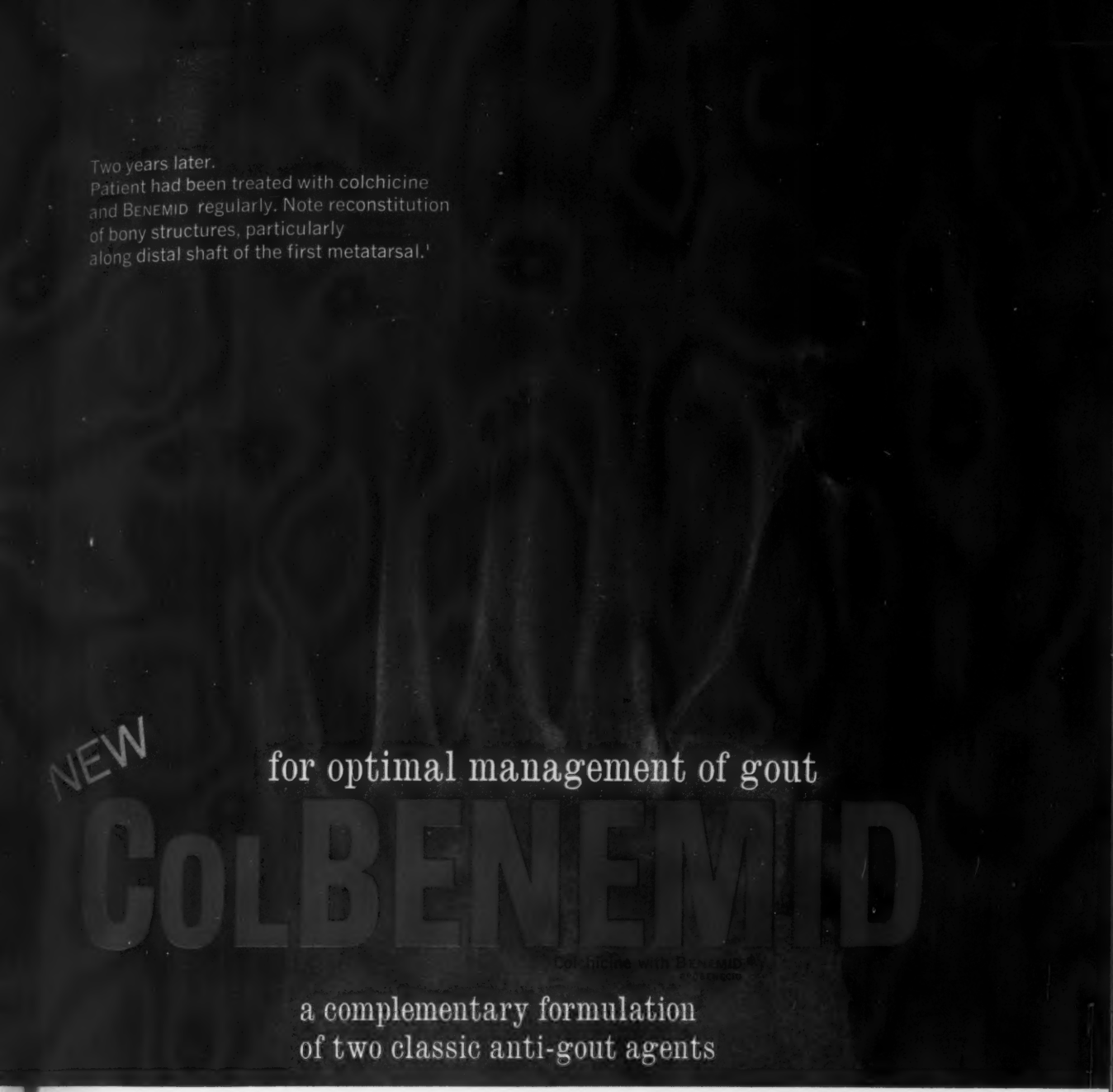
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1. Talbott, J. H.: Gout, New York, Grune & Stratton, 1957, pp. 162, 163. 2. Talbott, J. H.: Gouty arthritis, Minn. Med. *42*:1044, Aug. 1959. 3. Talbott, J. H.: Recognition and treatment of gouty arthritis, Current Medical Digest *26*:57, Nov. 1959.

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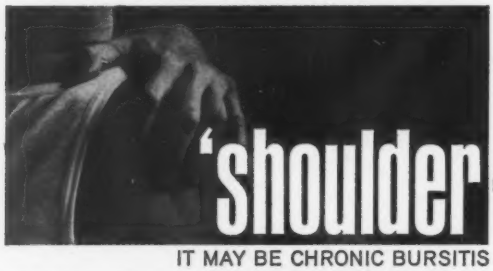

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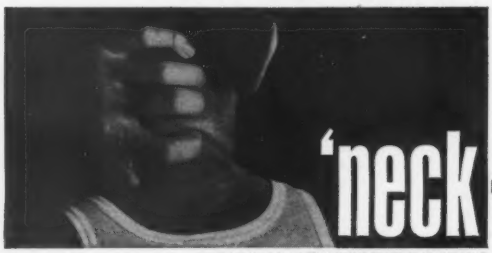

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References: **1.** Cohen, A., et al.: J.A.M.A. 165:225, 1957. **2.** Spies, T. D., et al.: J.A.M.A. 159:645, 1955. **3.** Stecher, R. M.: Panel Discussion, Ohio M. J. 52:1037, 1956.

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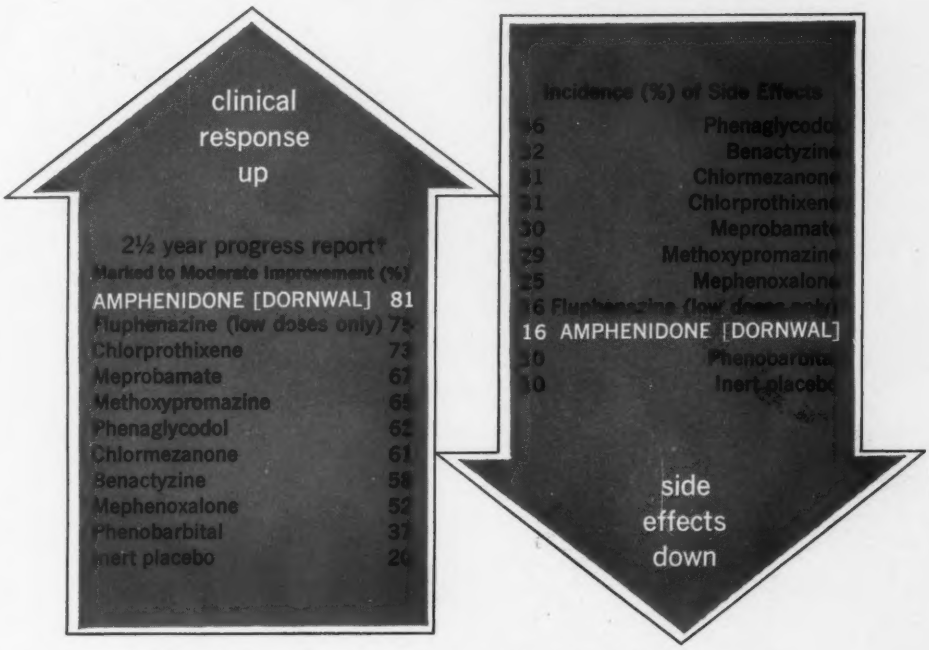

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*Nodine, J. H.; Bodi, T.; Slap, J.; Levy, H. A., and Siegler, P. E.: Human bioassay of tranquilizers in psychosomatic disorders, Scientific Exhibit, American Medical Association Annual Meeting, Miami Beach, Florida, June 13-17, 1960.

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help to escape from the animals. Further, rabid raccoons were even more important as a vector for introducing rabies into dog populations. Dogs were especially likely to be bitten when they harassed sick raccoons that wandered into communities or towns. The dog rabies epizootic of 1955 in Tampa, Hillsborough County, probably started with a hound that had caught an infected raccoon. Nearby Pasco County had a number of rabid dogs during the same year, the disease probably spreading up the Hillsboro River through infected raccoons.

Most of the danger from the raccoon stems from the inapparent nature of rabies in these animals. This characteristic permitted the infection to move considerable distances without attracting attention. When a rabid raccoon was reported from Inverness, Citrus County, on the Withlacoochee River and its lakes, a trapping program was initiated to investigate the animal population. Of 24 raccoons captured along the river, 1 was rabid. This animal was taken about 35 miles downriver from Inverness, but the two intervening waterfront towns of Dunnellon and Yankeetown did not report any rabid animals or unusual raccoon behavior. Rabid raccoons were discovered almost simultaneously on either side of eight other river or waterfront towns, but none of the towns reported any rabid animals, although infected raccoons presumably passed through the communities.

Our data indicate that rabies was common in the raccoon population of peninsular Florida. The unaggressive nature of rabid raccoons and, consequently, the low reporting rate merit further study. Our data fail to show that raccoons have had any contact with an inapparent rabies reservoir in other species. The wide distribution but sporadic reporting of rabies in raccoons made it virtually impossible to recognize such contacts.

SKUNKS

Data on rabid skunks are meager in Florida. Nine cases were recorded, but there were no data on animal populations where six of these occurred. In two cases trapping yielded 30 skunks, but none of these was rabid. No rabid skunks were submitted to the State laboratories from the fox rabies epizootic area, although striped skunks, *Mephitis mephitis*, were abundant in some places. This animal inhabits all mainland Florida. The spotted skunks, *Spilogale ambarvalis* and *Spilogale putorius*, are reported only from the lower peninsula and from extreme western Florida, respectively. It is not known which species made the attacks.

Heads of two rabid animals, one fox and one raccoon, smelled so strongly of skunk scent when received in the laboratory that there was little doubt they had contacted a skunk shortly before they were killed. Obviously, rabid skunks might infect other carnivores that attack

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TABLE 3. SPECIES EXPOSED BY RABID ANIMALS IN 197 CASE HISTORIES

	Vector					
Victim	Dog	Cat	Fox	Raccoon	Skunk	Bat
Dog	Yes	No	Yes	Yes	?	Yes
Cat	Yes	No	Yes	No	No	Yes
Fox	No	No	?	No	No	No
Raccoon	No	No	?	?	No	No
Skunk	No	No	?	?	No	No
Bat	No	No	No	No	No	?
Humans	Yes	Yes	Yes	Yes	Yes	Yes
Livestock	Yes	No	Yes	No	?	No

Yes=Observed contact.
No=No observed contact.
?=No observed contact but with attack indicated by epidemiological evidence.

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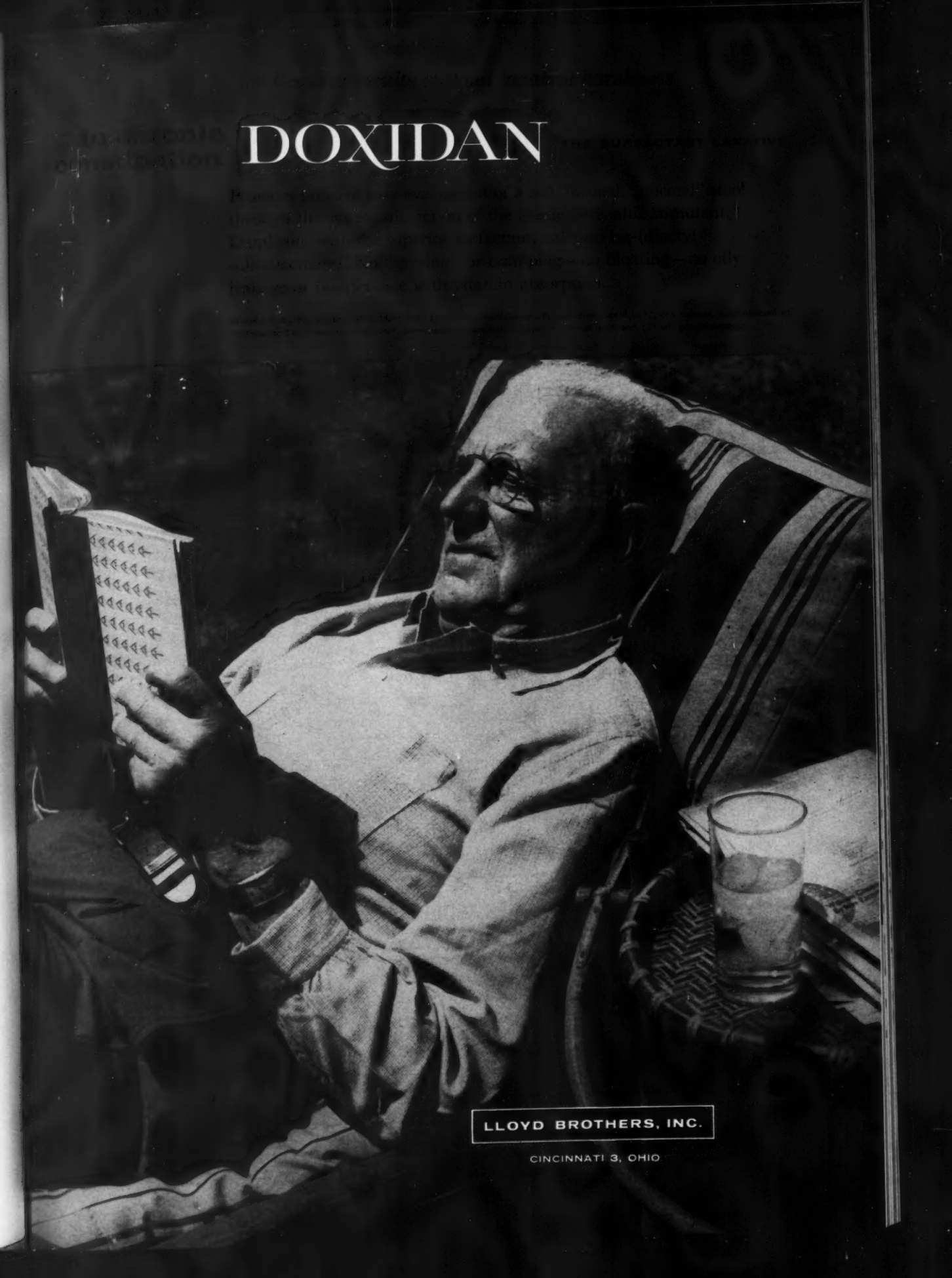

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them. The infrequency of attacks by rabid skunks, the aggressive nature of one of the two rabid skunks observed, and the attention they get when active in the daytime seem to exclude the striped skunk, at least, from consideration as the effective but inapparent rabies reservoir we seek. The behavior of both genera of skunks, when rabid, should be studied under experimental conditions.

COUNTY OBSERVATIONS

The nature of sporadic rabies can be better understood when the cases recorded in a single county are examined. Polk County is typical of the area where sporadic cases occurred most frequently. Twelve rabid animals were reported between 1951 and 1958, and these were distributed among six species. Careful case history studies established that no two animals of a single species were ever in contact with each other. Five animals, one bat, two kittens, one puppy, and one fox, were reported within the city limits of Lakeland, but there is reason to doubt that contact existed between any two of them. The lifespan of the kittens and the puppy did not overlap. The remaining seven rabid animals were widely separated in time and space, covering an area of more than 700 square miles and a period of 5 years. Similar situations were observed in at least 10 other counties. These 11 counties had a total of 84 sporadic cases, excluding the cases in raccoons and those related to dog rabies epizootics in two counties, or an average of almost 8 cases per county. Some cases involved bats or livestock, but an average of almost two cases per year was maintained in carnivores in each county for the years in which rabies was reported. There seemed to be a slow but steady rate of infection among the susceptible carnivores. The surveillance and animal bite reporting in these counties was as good as that attained anywhere.

COMMENT AND CONCLUSION

From locations of sporadic cases of rabies, excluding dogs and raccoons, and their seasonal incidence (table 2), it must be inferred that, if a single reservoir was responsible, it functioned constantly over a large area, but rather infrequently at any given place. There was no evidence of a slack season or of periods of increased activity in one given area.

The possibility that a multispecies enzootic exists, with infection between different species being more frequent than within any one species, has been mentioned. From data given in 197 case histories, the relationships of species of rabid animals to their victims, including persons, has been charted (table 3). A need for further study of the behavior of rabid animals of all species under experimental conditions is indicated. Some knowledge of the usual relationship between foxes and skunks, foxes and house

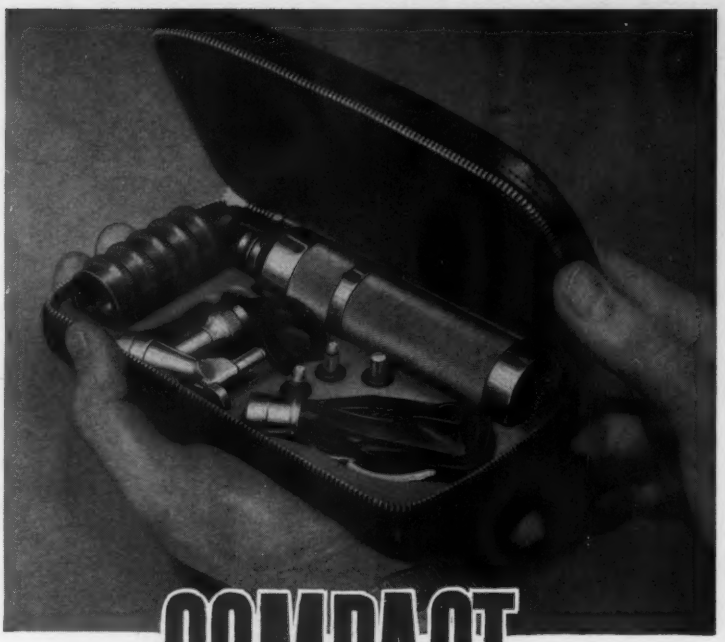

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TABLE 2. SEASONAL INCIDENCE OF SPORADIC RABIES IN FLORIDA, 1951-58

Species	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Fox	3	3	0	1	1	0	2	1	0	2	1	2	16
House cat	2	0	0	2	1	0	2	3	1	2	1	0	14
Other[1]	0	1	1	1	0	0	1	0	0	0	1	1	6
Total	5	4	1	4	2	0	5	4	1	4	3	3	36

[1] Skunk, cattle, dog.

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cats, and skunks and house cats would be enlightening. The behavior of animals of all species toward rabid raccoons and bats should be investigated.

We can see from our present data, however, that dogs, foxes, and possibly raccoons support epizootic rabies when suitable populations exist. Bats of various species may support epizootic rabies also, although the methods of transmission between bats, even between individuals of one species, have not been established in Florida. House cats and skunks apparently do not support epizootics, and seemingly do not infect others of their species, although skunk epizootics are reported from other States.

Dogs, when rabid, infected other dogs, house cats, and livestock, but apparently did not infect wildlife. In contrast, rabid house cats attacked only persons, and cats in contact with them did not become rabid. Foxes attacked other carnivore species, livestock, and humans. Observations indicated that some rabid foxes will attack anything moving, including inanimate objects. In contrast, rabid raccoons attacked nothing that did not first attack or threaten them.

Bats have exposed persons, dogs, cats, and presumably wildlife species also. There is now evidence that rabid bats are infective.[6] Any reservoir likely to infect cats, kittens, or puppies may be considered equally likely to function for skunks, foxes, and even raccoons.

If these data adequately depict the status of rabies in Florida, some general impressions can be expressed concerning the existence of an inapparent reservoir. The epizootics observed in foxes and the endemism seen in raccoons may explain all of the rabies cases recorded from western Florida and some of the sporadic cases in the peninsula. Since some of the sporadic cases, especially in kittens, could not possibly be traced to a bite by a raccoon, fox, or dog, it is logical to assume that some other vector is responsible, at least for some of these cases. It may be that this vector, which functions for kittens, and presumably for cats, infects other species also. Whether rabid insectivorous bats are capable of this, we do not know, though our data seem to exclude the carnivores. There is little room for doubt that some wildlife reservoir for rabies exists in Florida. Its identity and the means of the spread of infection need further study.

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2. Scatterday, J. E., and Galton, M. M.: Bat rabies in Florida. Vet. Med. 49:133 (1954).
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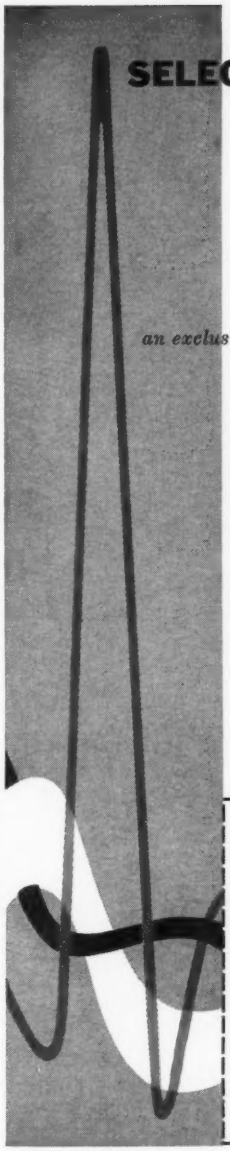
5. Wood, J. E.: Investigation of fox population and sylvatic rabies in the Southeast. Tr. North American Wildlife Conf. 19:131 (1954).
6. Bell, J. F.: Transmission of rabies to laboratory animals by bite of a naturally infected insectivorous bat. Science 129:1490-1491, May 29, 1959.



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Physiological effects of alcohol*

Nello Pace, Ph.D.
Department of Physiology
University of California, Berkeley

Alcohol might well be categorized as the oldest tranquilizer known to man. Certainly it has played a prominent role in every culture of the world, both presently existing and reaching back at least as far as the beginning of recorded history.

Before we inspect the physiological effects of this substance let us review what it is. Ethanol, or ethyl alcohol, arises in nature as the excretion of a microscopic fungus—the yeast organism —when it doesn't get enough oxygen.

Man has learned to deprive yeast of its oxygen on a large scale in the process

*Reprinted from *California's Health*, September 1, 1960. This is one of a series of articles on alcohol and alcoholism. These papers were given at an institute on *Planning for Alcohol Education*, held at Asilomar, February, 17-19, for school teachers, school administrators, and faculty of teacher training institutions in California.

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of fermentation, so that concentrations of alcohol up to 10 to 15 per cent are achieved in the growth medium before the organisms succumb to the accumulation of their own excretory products. The solution which results may be consumed directly in the form of various beers and wines whose characteristics are the result of the degree of ingenuity of the fermenter in selecting the particular strain of yeast, its food and the conditions of its feeding.

Man has also learned to concentrate the alcohol by distilling it off from the growth medium, then flavoring and coloring it in many and oftentimes delightful ways. Thus he produces the so-called hard spirits which generally contain 40 to 50 per cent alcohol, in contrast to the substantially lower alcohol concentration of beers and wines.

The various alcoholic preparations have their ardent partisans, and much of the folk-lore of alcohol depends upon the appearance, smell, taste and even sound of the particular form of the beverage. Perhaps the first physiological effect to be noted, then, is this stimulation of the special senses.

COMPLETE ABSORPTION

After the alcoholic beverage is swallowed, about 20 per cent of the alcohol is absorbed into the blood stream through the walls of the stomach. This route of entry into the body, however, is not nearly as effective or rapid as the absorption of alcohol through the walls of the small intestine, the channel for the other 80 per cent. It should be noted that for all practical purposes no alcohol passes through the digestive tract unabsorbed.

There is some modification of the rate of absorption by several factors. For example, the concentration of alcohol in the beverage is important. Generally speaking, drinks containing between 10 and 35 per cent alcohol are absorbed most rapidly. The apparent anomaly that high concentrations of alcohol are absorbed relatively slowly is due to the fact that in high concentration alcohol causes a reflex constriction of the valve at the lower end of the stomach—the pyloric sphincter—and the alcohol is admitted slowly into the sufficiently absorbing small intestine.

The type of alcoholic beverage is not so important, with the exception of carbonated drinks. The presence of carbon dioxide, as found in champagne or beer, causes the pyloric sphincter to relax, and these beverages reach the small intestine more rapidly; hence the alcohol is absorbed faster than that in noncarbonated beverages.

On the other hand, the presence of food in the stomach slows the rate of absorption, again because of a reflex effect on the pyloric sphincter. Food is not admitted into the small intestine until it has been partially digested in the stomach, so any alcohol present awaits the opening of the valve.

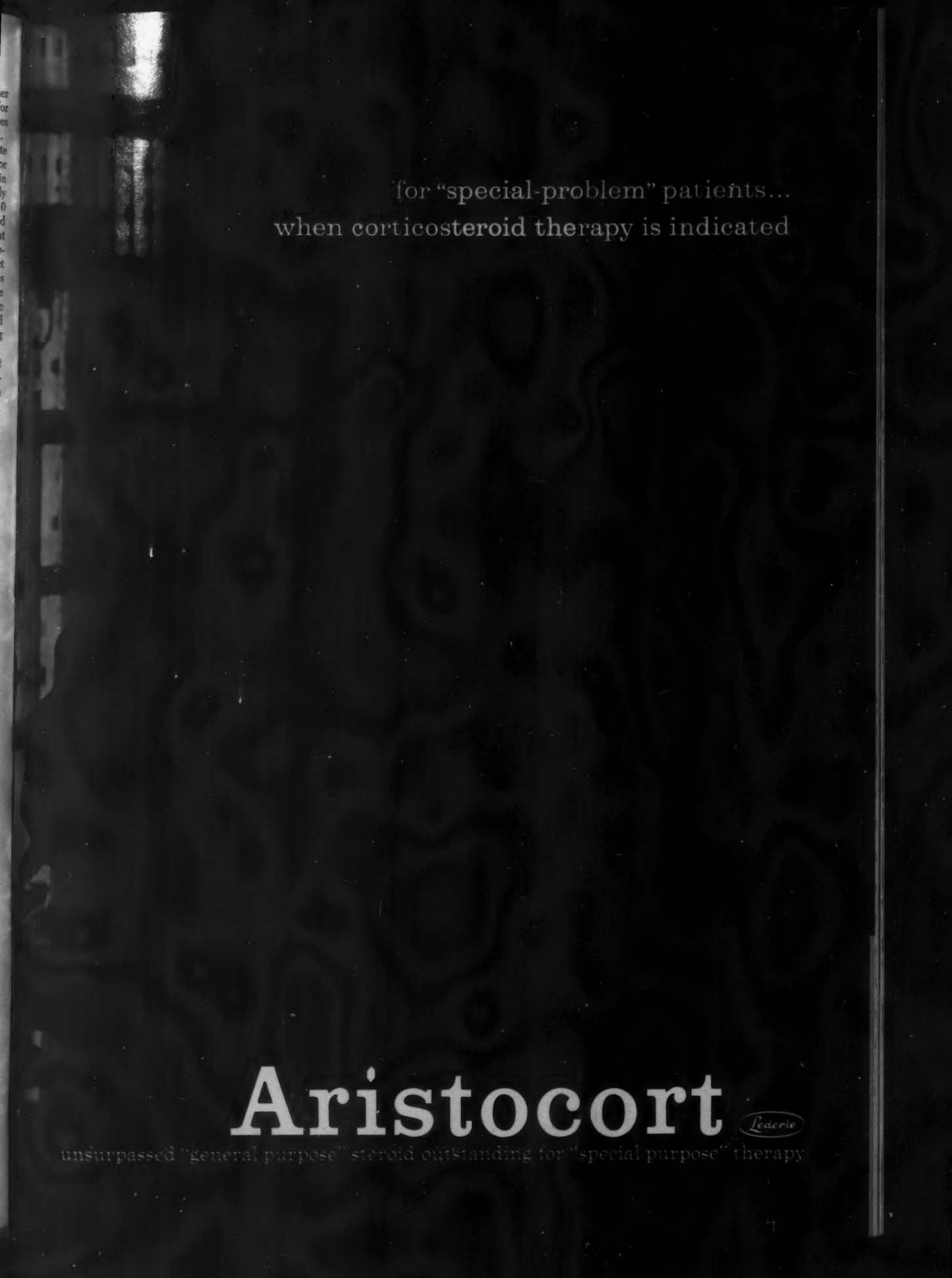
In all of these cases, while the rate of absorption of alcohol may be varied, it is inevitable that all of the alcohol imbibed is taken into the blood stream sooner or later because the alcohol is not changed by its passage through the gastrointestinal tract.

BODY WEIGHT IMPORTANT

We may now ask what happens to the alcohol after it reaches the blood stream. It is a small molecule as chemical substances go, and it is infinitely soluble in water. Thus it not only distributes itself throughout the body fluids but is able to penetrate all of the cells of the body very readily. The result is that any alcohol taken into the blood stream quickly spreads uniformly through the water of the body.

The average person weighing 150 pounds contains something like 65 per cent water in his body, or about 50 quarts. The physiologist, using the metric system, would speak of this as 45 liters of body water. However, average persons are not the only ones who drink. For instance, a petite woman weighing 100 pounds would have only about 30 liters of body water, whereas a 200 pound athlete would probably have 60 liters.

It is evident that the same amount of alcohol imbibed by the little lady and the strapping athlete would lead to twice the level of alcohol in the blood and body fluids of the former as in the latter. Thus body size is an important factor in determining the alcohol blood level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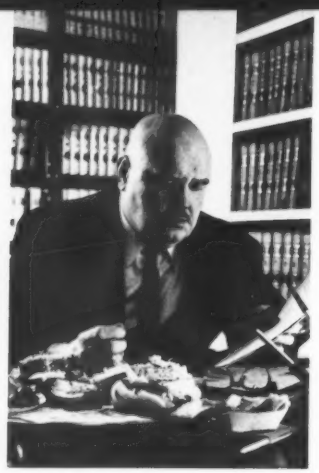

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No patient developed voracious appetite on triamcinolone. Preferable for the overweight person whose appetite is undesirably stimulated by other steroids. (Freyberg, R. H.; Berntsen, C. A., Jr., and Hellman, L.: *Arthritis & Rheumatism* 1:215 [June] 1958.)

SPECIAL PROBLEM: EDEMA

Since it does not produce edema, triamcinolone is useful in rheumatoid arthritis patients with cardiac decompensation who need steroid therapy. (Hollander, J. L.: *J.A.M.A.* 172:306 [Jan. 23] 1960.)

SPECIAL PROBLEM: HYPERTENSION

Triamcinolone may be included among the currently available antirheumatic steroids having the least tendency to cause sodium retention. (Ward, L. E.: *J.A.M.A.* 170:1318 [July 11] 1959.)

Hypertension did not result from triamcinolone therapy. Existing hypertension was reduced sometimes. This may have been due to lack of sodium retention. (Freyberg, R. H.; Berntsen, C. A., Jr., and Hellman, L.: *Arthritis & Rheumatism* 1:215 [June] 1958.)

Precautions: Collateral hormonal effects generally associated with corticosteroids may be induced. These include Cushingoid manifestations and muscle weakness. However, sodium and potassium retention, edema, weight gain, psychic aberration and hypertension are exceedingly rare. In the treatment of rheumatoid arthritis, dosage should be individualized and kept at the lowest level needed to control symptoms. Dosage should not exceed 36 mg. daily without potassium supplementation. Drug should not be withdrawn abruptly. Contraindicated in herpes simplex and chicken pox.

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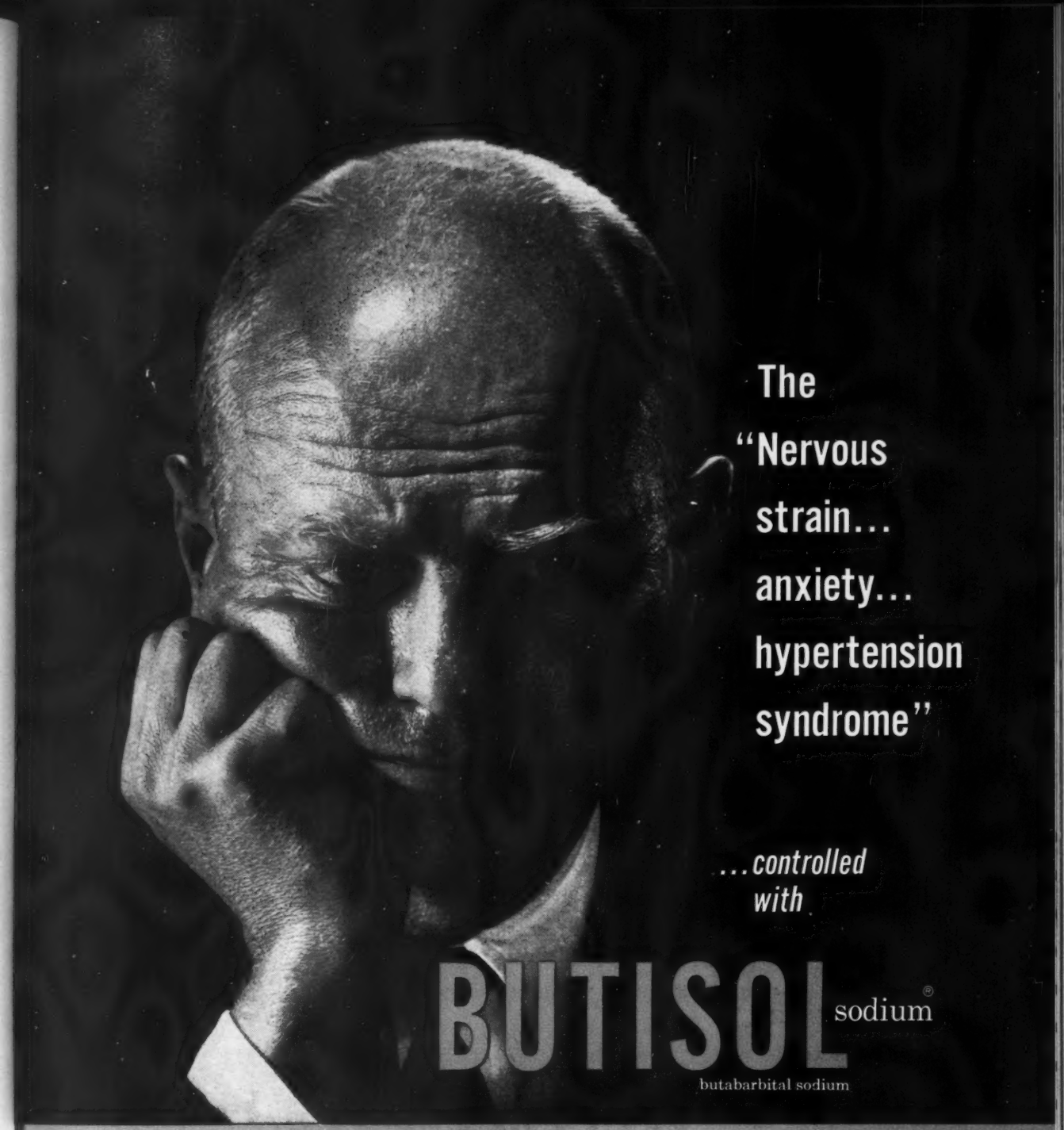

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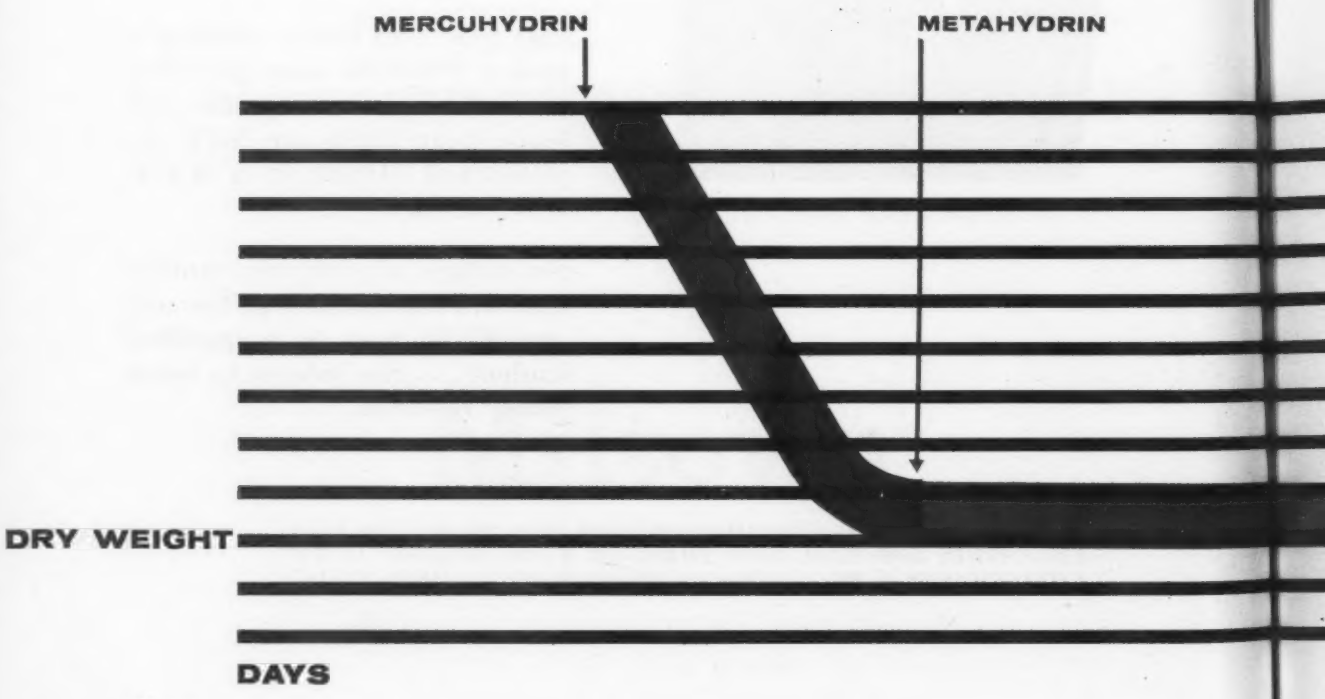

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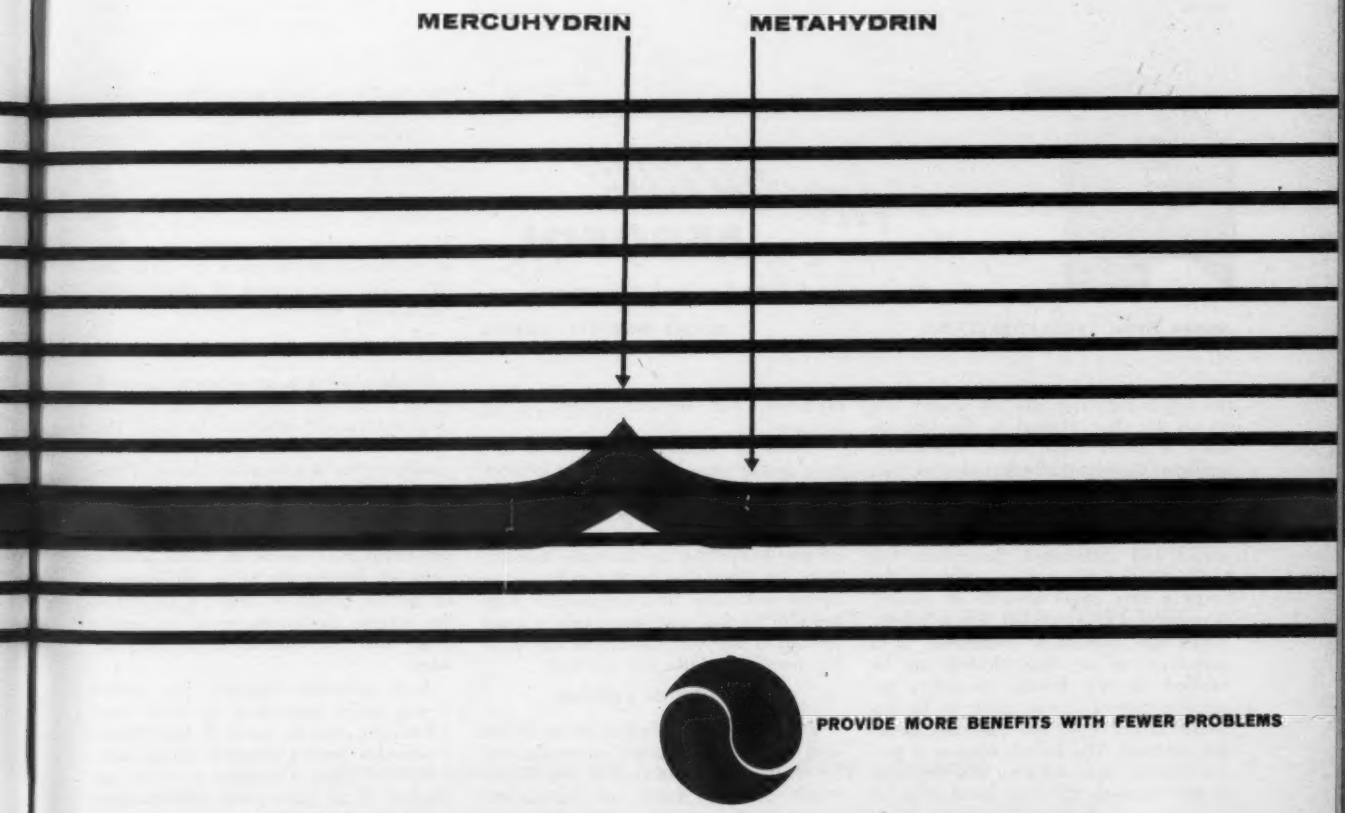

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reached in drinking, and the smaller the person the less alcohol is required to reach a given blood level. Obviously, children can tolerate far less alcohol than adults for this simple reason.

The next point to consider is what happens to the alcohol once it is ingested and distributed throughout the body. As the blood flows through the lungs a very small amount of alcohol evaporates and is exhaled in the breath. While this process is continuous, it is inaccurate to say that alcohol can be smelled on the breath. Actually, the amount present is too slight to be detected in this way, and chemical means are required. The breath odor of a person who has been drinking is attributable to the aromatic flavoring substances, or congeners, that are also present in the beverage.

Additional alcohol is lost from the body in the urine by way of the kidneys. However, taking the loss through the lungs together with that through the kidneys, we find that at most only about 10 per cent of the alcohol taken into the body is eliminated unchanged in the breath and urine. This occurs with large doses of alcohol, and when only a small amount is ingested, the breath and urine loss may be as little as 2 per cent.

OXIDATION OF ALCOHOL

The bulk of the alcohol, 90 to 98 per cent, is eventually burned or metabolized by the body to form carbon dioxide and water. Alcohol stands out among the food substances which are usable to any considerable extent in that a great deal of oxygen is required for its oxidation. The physiologist expresses this in terms of the respiratory quotient, which is simply the ratio of carbon dioxide produced by the body to the oxygen consumed in a given period of time.

As may be seen from the equation for the oxidation of alcohol only

$$C_2H_5OH + 3\ 0_2 \rightarrow 2\ CO_2 + 3\ H_2O$$

two molecules of carbon dioxide are produced for every three molecules of oxygen consumed per molecule of alcohol. Thus the respiratory quotient, or R.Q., for alcohol is 0.67. This may be contrasted with the R.Q. of 0.71 for fat, 0.80 for protein and 1.00 for carbohydrate, the principal food substances.

The caloric contribution of energy release resulting from the oxidation of alcohol is moderately high. Each gram of alcohol burned in the body results in the release of 7 calories. For purposes of comparison, one gram of either carbohydrate or protein when metabolized yields 4.1 calories, and one gram of fat gives rise to 9.3 calories.

Using this figure for alcohol, it can readily be computed that an ounce of 100 proof whiskey, which is 50 per cent alcohol, contains about 80 calories. Extending the calculations a bit further it turns out that a fifth, or 25.6 ounces, of 100 proof whiskey represents a little over 2,00 calories. Thus it is evident that the alcoholic who consumes a fifth of whiskey a day comes very close to supplying all of the body requirements for calories in the form of alcohol.

Let us look now at the rate at which the individual can metabolize alcohol. The liver is the specific organ responsible for the beginning of the chemical conversion of alcohol to energy, and a healthy human liver can handle about half an ounce of alcohol per hour. Thus by working the liver at its maximum rate for 24 hours a day, the alcohol in a fifth of whiskey can be made to yield the total daily requirement of about 2,000 calories for sedentary persons.

NUTRITIONALLY INADEQUATE

While alcohol is an efficient foodstuff as far as calories are concerned, it is far from nutritionally adequate by itself. The human being requires many other substances in the diet besides calories. There are specific requirements for vitamins, minerals, certain amino acids and unsaturated fatty acids. Alcoholic beverages contain little to none of these. Hence, although the chronic heavy drinker may be getting plenty of calories, he suffers the serious consequences of an inadequate diet. We shall return to this point later.

It is sometimes thought that alcohol is not really equivalent to other food substances even in terms of the calories it provides. Such a notion is wrong, however, and arose a number of years ago because of an incomplete understanding

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1. Schulz, Jeanette and Smith, N. J.: A. M. A. J. Dis. Child. 95:109(1958)
2. Josephs, H. W.: Medicine 32: 125 (1953)
3. Recommended Dietary Allowances, NAS-NRC Publication 589 (1958)

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of the intermediary metabolism, or individual chemical reactions undergone by foodstuffs in the body in the course of their total metabolism.

LIVER IMPORTANT IN UTILIZATION

I mentioned a few moments ago that the utilization of alcohol begins in the liver. The reason lies in the fact that this organ is the only one in the body that contains appreciable quantities of the enzyme, alcohol dehydrogenase. When alcohol dehydrogenase and the appropriate coenzyme are present, alcohol suffers partial oxidation by the removal of two atoms of hydrogen from its molecule, or dehydrogenation, and becomes the substance acetaldehyde.

It is interesting to note as an aside that the yeast organism also contains alcohol dehydrogenase and utilizes it as the catalyst in the reverse direction to form alcohol from acetaldehyde in the final step of fermentation.

The acetaldehyde produced by the liver, before it can accumulate to any extent, is rapidly converted for further partial oxidation to acetic acid. This is a fortunate situation because acetaldehyde is a rather toxic substance whereas acetic acid, or acetate, is not. Even more important, perhaps, is the fact that acetate is the product of partial oxidation of carbohydrates, fats and part of the protein in the course of normal nutrition, and the bulk of the useful energy release from food comes from the subsequent oxidation of acetate to carbon dioxide and water.

Thus, once alcohol is converted to acetate it is indistinguishable from any other foodstuff as far as providing energy is concerned. The older idea that alcohol could not provide energy for some of the body functions such as muscular work was based on the observation that muscular exercise does not hasten the disappearance of alcohol from the blood. Hence it was concluded that the muscles could not utilize alcohol.

While increased muscular activity certainly does not hasten alcohol utilization, contrary to some popular opinion, alcohol can provide energy for all the body functions. The apparent problem here is resolved very simply when it is realized that the bottleneck for utilizing the alcohol is its original conversion to acetaldehyde by the liver. Thus the rate of disappearance from the blood depends upon the liver, and not upon the subsequent rate of utilization of acetate by the body tissues at large.

Many means have been sought to speed up this initial transformation of alcohol by the liver, but exercise, fresh air, cold showers, black coffee and all of the other even more sophisticated attempts seem to have been of no avail to date. It may also be mentioned that the liver apparently has to work hard to effect the conversion of alcohol to acetaldehyde at the rate that it normally does. We shall examine some of the possible implications later.

WIDE INDIVIDUAL DIFFERENCES

Now let us look briefly at the subjective effects of alcohol. These seem to be related in a general way to the level of alcohol in the blood. However, it must be emphasized that there is a wide difference in the ability of individuals to tolerate a particular blood level.

For want of a better criterion, the concentration of alcohol in the blood is used for the legal definition of the physiological state of the individual. Under California law, a person is considered to be "under the influence of

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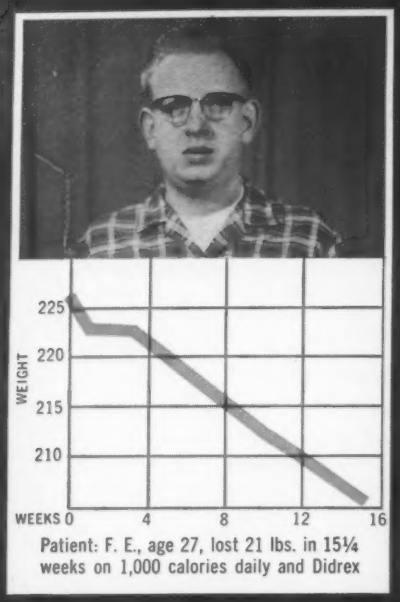
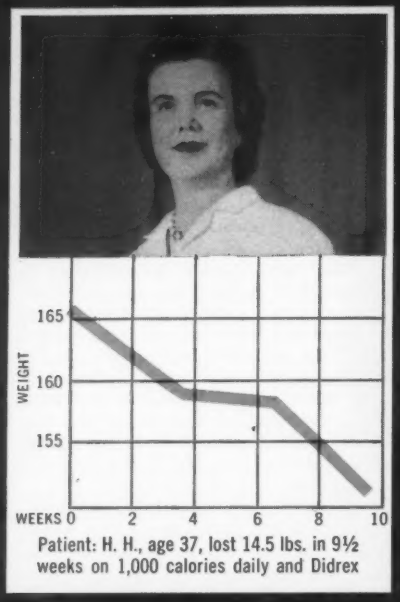
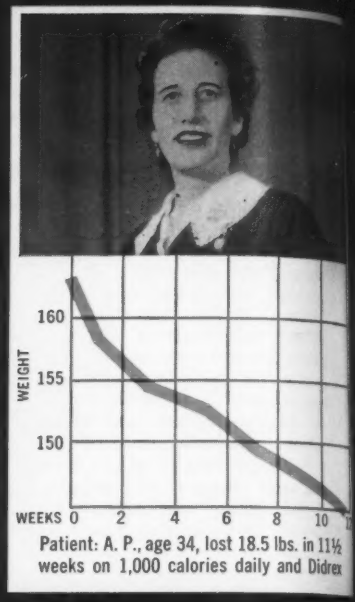


Patient: F. E., age 27, lost 21 lbs. in 15¼ weeks on 1,000 calories daily and Didrex



Patient: H. H., age 37, lost 14.5 lbs. in 9½ weeks on 1,000 calories daily and Didrex



Patient: A. P., age 34, lost 18.5 lbs. in 11½ weeks on 1,000 calories daily and Didrex

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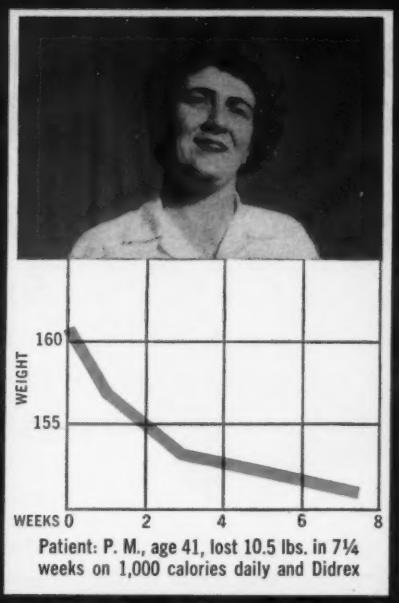
Patient: L. M., age 29, lost 20.5 lbs. in 9½ weeks on 1,000 calories daily and Didrex



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Photos and case histories courtesy Drs. Alan S. Rubenstein, P.V. Dilts and William Conroy, Springfield, Illinois

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Oral hypoglycemic agents stimulate endogenous insulin production, while supplementary exogenous insulin tends to rest the pancreas. Thus, patients with pancreatic reserve insufficient to respond to a oral agent alone may profit from combined treatment.[1] Resistance to exogenous insulin alone may be due to insulin-inhibiting mechanisms, such as antibodies.[1,2,3] The sparing effect of oral hypoglycemic agents on exogenous insulin may be due to increased endogenous insulin production to which there are no antibodies.[1]

Sources: (1) Volk, B. W., and Lazarus, S. S.: Am. J. M. Sc. *237*:1, 1959. (2) Berson, S. A. *et al.*: J. Clin. Invest. *35*:170, 1956. (3) Colwell, A. R., and Weiger, R. W.: J. Lab. & Clin. Med. *47*:844, 1956.

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intoxicating liquor" if the amount of alcohol in his blood exceeds 150 milligrams per 100 cubic centimeters of blood (sometimes referred to as 150 mg. percent or 0.15 percent by weight). This does not mean that persons with less than 150 mg. percent are not affected by the alcohol, but rather that practically everyone with such a blood level exhibits marked impairment of physiological function. Thus the law attempts to meet the problem of the wide individual variation in effects seen with a given blood alcohol level by setting the intoxication threshold high enough to avoid penalizing persons with an unusually great tolerance for alcohol, with very few exceptions.

Actually, most individuals show some, but definite, impairment of higher brain function with only 50 to 100 mg. per cent blood alcohol. These levels are reached by drinking two to four ounces of whiskey or two to four bottles of beer.

At the other end of the scale, 300 mg. per cent blood alcohol is sufficient to produce reeling stupefaction; 400 mg. per cent results in complete unconsciousness or coma; and levels above 600 mg. per cent are almost invariably fatal.

EFFECT ON NERVOUS SYSTEM

Subjectively, it is obvious that alcohol has marked and extensive effects on the function of the central nervous system, the brain in particular. At the outset it may be stated unequivocally that alcohol acts physiologically to depress nerve function, and can be considered a narcotic. In low concentration the highest levels of brain function are impaired first. Since it is at the cortical level that the complex psychic activities such as social inhibitions, shyness and judgment are manifested, it is small wonder that the common impression exists that alcohol is a stimulant. Actually, all narcotics, alcohol included, in low dosage can give rise to excited behavior, owing to the depression of function of the highest brain centers. With increased dosage the depressant action becomes more obvious and widespread. There is no question that alcohol at any level interferes with nervous function.

Under appropriate circumstances the tranquilizing or relaxing action of alcohol can be beneficial to the individual, but under other circumstances where highest physical coordination and judgment are required, as in driving an automobile, even small amounts of alcohol can have serious consequences.

It is not known exactly how alcohol or any other narcotic acts to depress nerve function. It has been postulated that somehow the transmission of the nerve impulse from one nerve cell to another across the junction called the synapse is affected. It has also been suggested that the effect is on the chemical energy transfer mechanism within the individual nerve cells known as oxidative phosphorylation. The precise physiological

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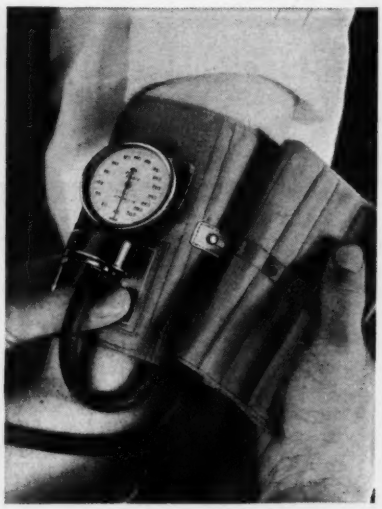

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explanation is still lacking, however.

It should be pointed out that the depressant action of alcohol seems to be completely reversible, and no permanent effects on the brain and nervous system are directly attributable to alcohol. In other words, alcohol does not "dissolve the brain." It is well known, however, that a wide variety of neurological disorders is seen in chronic alcoholics, perhaps the most dramatic and best known being delirium tremens, or the "D.T.'s." This apparently contradictory state of affairs is resolved by appreciation of the fact that the nervous system degeneration seen in alcoholics is indistinguishable from that in persons suffering from the nutritional disease beriberi, which results from lack of vitamin B_1 or thiamin in the diet. It seems clear that if the alcoholic receives an adequate supply of vitamin B_1, the nerve damage is avoided. Treatment of alcoholics with large doses of thiamin has become standard practice.

To sum up the physiological effects of alcohol on the nervous system, then, we may say that alcohol is not directly dangerous to the brain and nerves but that it does exert two very serious indirect effects. One is the temporary and reversible interference with motor coordination and judgment that can lead to serious injury or death, particularly when mixed with the operation of automobiles. The other is the long-term consequence of inadequate nutrition in the chronic alcoholic, leading to massive and permanent degeneration of the nervous system. On the other hand, it must be reiterated that under appropriate circumstances the relaxing effects of alcohol can be beneficial.

ALTERS LIVER FUNCTION

Now let us look at some of the other problems that can result from chronic, heavy drinking. I am not going to discuss the psychological and socio-economic considerations, as these are being treated by other speakers. There are, however, additional physiological alterations that appear to be associated with the consumption of large quantities of alcohol over a long period of time, and these center on the liver.

There is a wealth of evidence to show that cirrhosis of the liver is an occupational disease of the chronic, heavy drinker. It is frequently the cause of death, and an abnormal or damaged liver is often seen during autopsy of alcoholics who die from other causes. The modern tendency in clinical medicine has been to ascribe liver damage in heavy drinkers to the associated malnutrition already discussed in connection with the nervous system, rather than to a direct effect of alcohol itself on the liver. From work with experimental animals it is clear that a bout of acute alcoholic intoxication can produce profound alterations in normal liver function, quite apart from any question of nutritional deficiencies.

For the past few years our laboratory in Berkeley has been examining some of the metabolic consequences in man of drinking alcoholic beverages. Drs. Paola S. Timiras and George Rosenfeld have collaborated with me in this work, which has involved the examination both of chronic alcoholics shortly after their commitment for drunkenness and of normal, volunteer subjects after heavy consumption of alcohol. In this work blood and urine specimens are obtained at intervals, and are subsequently analyzed for a wide assortment of biochemical constituents. Changes in metabolic pattern may thus be determined quantitatively.

A number of interesting and new findings have emerged. These will be described in detail in reports now being prepared for publication, but I wish to mention a few of these briefly here.

One very important finding is the clear evidence of markedly impaired liver function in the normal individuals who became acutely intoxicated. The impairment took the form of alterations in the carbohydrate and fat metabolism which is ordinarily carried out by the liver. It also showed up as a marked reduction in the conversion rate of one of the recently popularized central neurohumoral monoamine agents, serotonin, to the end product 5-hydroxyindoleacetic acid—a process carried on by the liver. Finally, the rate of formation of uric acid by the liver was slowed down markedly.

Thus it appears that the load imposed on the liver during alcohol detoxification has far-reaching metabolic consequences, and that repeated loading of the liver by alcohol specifically may lead to the permanent damage observable grossly as fatty degeneration and cirrhosis.

In any event, it would seem clear that the chronic alcoholic upon being hospitalized requires medical and nursing care as a liver patient, in spite of negative findings with the current "liver function" tests, in addition to requiring psychiatric treatment for the cause of the excessive drinking.

POTENT DIURETIC

Another of the effects we have noted is a confirmation of an older observation that is sometimes lost sight of. Alcohol is a potent diuretic, and it can be shown quite readily that the increased production of urine as a result of drinking is far greater than can be accounted for by the water taken in with the alcoholic beverage. Thus there is a net loss of water from the body.

It is evident that acute intoxication results in a substantial response of the endocrine system, as noted in our studies of the increased production of hormones by the cortex of the adrenal gland. The increase in adrenocortical hormones leads

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(1) Hootnick, H. L.: Jnl. Amer. Ger. Soc., 4:1021-1030, 1956. (2) Cass, L. J. and Frederik,W. S.: Jnl. Lancet, 73: 414-416, 1953. (3) Marshall,W.: So. Dak. J. Med. & Pharm. 8:151:153, 1955.

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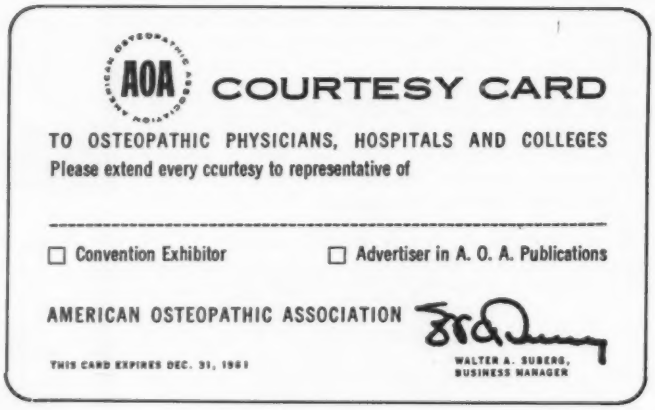

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in turn to effects on the carbohydrate and protein metabolism of the body, as well as on its electrolyte or mineral balance.

In comparing the metabolic patterns of chronic alcoholics with those of intoxicated normal individuals we have found many of the same changes. One very important difference has emerged, however. While the normal individual returns to his pre-intoxication metabolism completely within a day or two, the chronic alcoholic shows evidences of abnormal metabolism even after after 30 days of abstinence from alcohol and on a good diet.

In closing, I should like to mention some preliminary results we have obtained recently on a slightly different aspect of the alcohol problem.

CONGENERS STUDIED

It has been suggested sporadically for many years that much of the acute intoxication by alcoholic beverages may be caused by the flavoring substances present, which are known as congeners. These range over a wide spectrum chemically, and while present in small amount, some are quite toxic in higher concentration. For example, in this category is the "fusel oil" of whiskey and other hard spirits, a mixture of higher alcohols than ethyl alcohol. Wines and beers contain still other kinds of congeners.

An example of the deleterious role that may be played by congeners is the condition known as Marchiafava's disease, a neuropathological disorder with characteristic symptoms, occurring chiefly among Italian patients who have drunk red wine heavily for many years. It is evident here that some factor other than nutritional deficiency or the toxic effect of alcohol itself must be involved, and the wine congeners have been suspected.

In our preliminary studies we have compared the effects of drinking pure alcohol and 100 proof bonded bourbon whiskey in normal men. It is apparent in the few cases thus far examined that the same amount of alcohol taken in the form of whiskey resulted in substantially greater alteration of metabolic pattern than did the alcohol without congeners. However, much more work is needed to establish the importance of congeners in the deleterious effects of chronic, heavy drinking.

While much has been learned about the psychological effects of alcohol, there is still much that is not known. In view of the broad and prominent role of this substance in the society of man, apart from the special and oftentimes tragic problem of the alcoholic, there is no question that active and intensive further research is needed in this field. It is to be hoped that with more and better information the fine line between alcohol as a boon and alcohol as a bane can eventually be delineated clearly.

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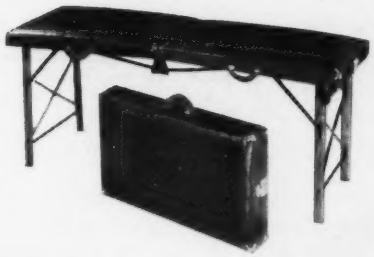

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Fatal accidents in later life*

Life has become safer for older people in the United States. The accident death rate at ages 65 and over has decreased from 224 per 100,000 in 1949 to 164 in 1958, or more than 25 per cent in less than a decade. It is clear from the study, however, that the improvement represents very largely the gains made in the white population. Among white men aged 65 and over, the accident death rate followed a fairly steady downward course, decreasing more than one fifth between 1949 and 1958—from 237 to 183 per 100,000. Among white females the record was even more favorable, the rate dropping without interruption from 219 to 149 per 100,000, or nearly one third.

The lowered accident death toll among elders in the white population reflects principally the reduction in mortality from falls. The death rate from accidental falls among white men aged 65 and over averaged 87.1 per 100,000 in 1957-58; in 1949 it was 113.6. Among white women the rates for the two periods were 112.2 and 171.7 per 100,000, respectively. Despite these favorable trends, falls are still by far the leading cause of accidental death at ages 65 and over. Among males, falls account for nearly one third of all fatal injuries at ages 65-74, for half the total at ages 75-84, and for three fourths at ages 85 and over. The proportions are even higher for females.

Motor vehicle accidents rank second as a cause of fatal injury at ages 65 and over. In fact, among men at ages 65-74, they are responsible for more deaths than falls. In 1957-58, motor vehicle accidents accounted for 30 per cent of the total accident mortality among white men at ages 65 and over, and for 15 per cent of the total among white females. Unlike the mortality from falls, which rises very sharply throughout the advanced ages, the death rate from motor vehicle accidents reaches a peak at ages 75-84 and then decreases somewhat. A considerable proportion of the older people killed in motor vehicle accidents are pedestrians. Among the men at ages 65 and over the proportion is somewhat over two fifths; among the women it is about one third.

Fires and burns by other means rank next in numerical importance as a cause of accidental death among older people. The chances of death from this cause increase rapidly with advance in age. Thus, among white men the death rate in 1957-58 rose from 9.0 per 100,000 at ages 65-74 to 19.6 at 75-84 years, and further to 36.5 at ages 85 and over. Among white females also, the death rate from fires and burns by other means was about 4 times as high at ages 85 and over as at 65-74 years. The remaining causes of accidental death include drowning, injury by machinery, railway mishaps, firearms, and poisoning by gas, solids, or liquids; all of these take a much larger toll of life among men than women.

Altogether, accidents among people at ages 65 and over (including the nonwhite population) are responsible for about 25,000 deaths a year in the United States. Many times that number of elders sustain nonfatal injuries of a more or less serious nature. Data derived from the U. S. National Health Survey for the year July 1957—June 1958 show that about 3,625,000 people at ages 65 and over suffered injuries which involved at least one day of restricted activity or medical attendance. Thus, 1 out of every 4 people at these ages sustained a fairly serious accident during the year. Of the total injured, 2,739,000, or three fourths, were medically attended.

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, September 1960.

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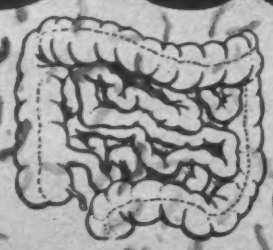

Books received

Books received for review during the period from November 5 to December 5 are listed below. Reviews will be published as space permits.

BLOOD DISEASES OF INFANCY AND CHILDHOOD. By Carl H. Smith, M.A., M.D., Professor of Clinical Pediatrics, Cornell University Medical College, New York, N.Y.; Attending Pediatrician, The New York Hospital, New York, N.Y.; Consulting Pediatrician, Beekman-Downtown Hospital, New York, N.Y.; Fitkin Memorial Hospital, Neptune, N.J.; Misericordia Hospital, New York, N.Y.; New York Infirmary, New York, N.Y.; St. Joseph's Hospital, Far Rockaway, N.Y.; Sea View Hospital, Staten Island, N.Y.; Consulting Hematologist in Pediatrics, Lenox Hill Hospital, New York, N.Y. Cloth. Pp. 572, with illustrations. Price $17.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1960.

CUTANEOUS MANIFESTATIONS OF THE RETICULOENDOTHELIAL GRANULOMAS. Edited by Samuel M. Bluefarb, B.S., M.D., F.A.C.P. Cloth. Pp. 442, with illustrations. Price $14.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

SURGERY OF THE AORTA AND ITS BRANCHES. By James D. Hardy, M.S. (Chem.), M.D., F.A.C.S., Professor and Chairman, Department of Surgery, University of Mississippi Medical Center, and Surgeon-in-Chief to the University Hospital; Chief Surgical Consultant to the Veterans Administration Hospital, Jackson, Mississippi. Cloth. Pp. 386, with illustrations. Price $6.50. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1960.

TECHNIQUE OF FLUID BALANCE. Principles and Management of Water and Electrolyte Therapy. By Geoffrey H. Tovey, M.D., Director, South West Regional Blood Transfusion Service, Southmead, Bristol; Lecturer in Haematology, University of Bristol. Ed. 2. Cloth. Pp. 115, with illustrations. Price $3.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

DISC LESIONS AND OTHER INTERVERTEBRAL DERANGEMENTS. Treated by Manipulation, Traction and Other Conservative Methods. By E. J. Crisp, M.D. (Cantab.), D.Phys. Med. (Lond.), Consultant Physician Emeritus in Physical Medicine, Guy's Hospital, London. Cloth. Pp. 158, with illustrations. Price $3.75. E. & S. Livingstone, London. The Williams & Wilkins Company, exclusive U.S. distributors, 428 East Preston Street, Baltimore 2, 1960.

PROGRESS IN THE TREATMENT OF FRACTURES AND DISLOCATIONS 1950-1960. By Thomas B. Quigley, M.D., Assistant Clinical Professor of Surgery, Harvard Medical School; Surgeon, Peter Bent Brigham Hospital; and Henry Banks, M.D., Clinical Associate in Orthopedic Surgery, Harvard Medical School; Associate in Orthopedic Surgery, Peter Bent Brigham Hospital. Cloth. Pp. 102. Price $2.50. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1960.

INTRODUCTION TO MEDICAL PHYSICS. By J. Trygve Jensen, Ed.D., Professor of Chemistry and Chairman of the Department, Wagner College, New York; Lecturer in Physics for Nurses, Teachers College, Columbia University, New York. Paper. Pp. 240, with illustrations. Price $2.90. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1960.

PROCEDURES IN VASCULAR SURGERY. By Richard Warren, M.D., Clinical Professor of Surgery, Harvard Medical School. Cloth. Pp. 211, with illustrations. Price $12.00. Little, Brown and Company, 34 Beacon Street, Boston 6, 1960.

BEDSIDE MEDICINE. By I. Snapper, M.D., Director of Medicine and Medical Education, Beth-El Hospital, Brooklyn, N.Y.; Consultant in Medicine, Veterans Administration Hospital, Brooklyn, N.Y. Cloth. Pp. 592. Price $14.50. Grune and Stratton, 381 Fourth Avenue, New York 16, 1960.

INFECTIOUS DISEASES OF CHILDREN. By Saul Krugman, M.D., Professor and Chairman, Department of Pediatrics, New York University School of Medicine, New York, N.Y.; Director, Pediatric Service, Bellevue Hospital Center, New York, N.Y.; Director, Pediatric Service, University Hospital, New York, N.Y.; and Robert Ward, M.D., Professor and Head, Department of Pediatrics, University of Southern California School of Medicine, Los Angeles,

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Calif.; Physician-in-Chief, Childrens Hospital, Los Angeles, Calif. Ed. 2. Cloth. Pp. 398, with illustrations. Price $13.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1960.

CLINICAL GASTROENTEROLOGY. By F. Avery Jones, M.D. (Lond.), Hon. M.D. (Melbourne), F.R.C.P. (Lond.), Physician, Central Middlesex Hospital; Consulting Gastroenterologist, St. Mark's Hospital for Diseases of the Rectum and Colon and to the Royal Navy; and J. W. P. Gummer, M.S. (Lond.), F.R.C.S. (Eng.), Surgeon, Central Middlesex Hospital. Cloth. Pp. 652, with illustrations. Price $15.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

THE ELECTRICAL ACTIVITY OF THE NERVOUS SYSTEM. A Textbook for Students. By Mary A. B. Brazier, B.Sc., Ph.D. (London), Neurophysiologist, Massachusetts General Hospital; Research Associate, Harvard Medical School; Research Associate, Massachusetts Institute of Technology. Ed. 2. Cloth. Pp. 273, with illustrations. Price $8.50. The Macmillan Company, 60 Fifth Avenue, New York 11, 1960.

REGULATION OF THE INORGANIC ION CONTENT OF CELLS. CIBA Foundation Study Group No. 5. Edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P.; and Cecilia M. O'Connor, B.Sc. Cloth. Pp. 100, with illustrations. Price $2.50. Little, Brown and Company, 34 Beacon Street, Boston 6, 1960.

SURGICAL DISEASES OF THE PANCREAS. By John M. Howard, M.D., F.A.C.S., Professor and Chairman, Department of Surgery, Hahnemann Medical College, and Surgeon in Chief, Hahnemann Hospital; Consultant in Surgery, Walter Reed Army Medical Center, Washington, D.C., Fitkin Memorial Hospital, Neptune, N.J., Veterans Administration Hospital, Philadelphia; Consultant in Thoracic Surgery, Veterans Administration Hospital, Wilkes-Barre and Philadelphia, Pa.; and Chief of Surgical Section (Hahnemann), Philadelphia General Hospital, Philadelphia, Pa.; and George L. Jordan, Jr., M.D., M.S., F.A.C.S., Associate Professor of Surgery, Baylor University College of Medicine; Consultant in Surgery, Veterans Administration Hospital; Attending in Surgery, Methodist Hospital and Jefferson Davis Hospital, Houston, Texas. Cloth. Pp. 607, with illustrations. Price $20.00. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1960.

NERVE ENDINGS IN NORMAL AND PATHOLOGIC SKIN. Contributions to the Anatomy of Sensation. By R. K. Winkelmann, M.D., Ph.D., Section of Dermatology, Mayo Clinic, Rochester, Minnesota. Cloth. Pp. 195, with illustrations. Price $7.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

RESUSCITATION OF THE NEWBORN INFANT. Principles and Practice. Edited by Harold Abramson, M.D., Professor of Clinical Pediatrics, New York Medical College, New York, N.Y.; Director of Maternal and Child Health Program, New York Medical College-Metropolitan Medical Center, New York, N.Y.; Attending Pediatrician, Flower and Fifth Avenue Hospitals, New York, N.Y.; Visiting Pediatrician, Metropolitan Hospital, New York, N.Y.; Chief, Communicable Disease Service, Metropolitan Hospital, New York, N.Y.; formerly Epidemiologist, Bureau of Preventable Diseases, New York City Department of Health. Cloth. Pp. 274, with illustrations. Price $10.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1960.

A SYSTEM OF MEDICAL HYPNOSIS. By Ainslie Meares, M.D., B.Agr.Sc., D.P.M., President, International Society for Clinical and Experimental Hypnosis. Cloth. Pp. 484. Price $10.00. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1960.

THE SURGICAL TREATMENT OF PORTAL HYPERTENSION, BLEEDING ESOPHAGEAL VARICES AND ASCITES. By M. Judson Mackby, M.D., D.A.B.S., F.I.C.S., Staff Surgeon, Kaiser Foundation Hospital, San Francisco, California; Staff Surgeon, Permanente Medical Group. Cloth. Pp. 250, with illustrations. Price $10.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

NURSES CAN GIVE AND TEACH REHABILITATION. A Manual. By Mildred J. Allgire, R.N., R.P.T., M.A., Director, Nursing and Therapy Services; and Ruth R. Denney, R.N., R.P.T., B.S., Consultant, Nursing and Physical Therapy Division of Services for Crippled Children, Indiana State Department of Public Welfare, Indianapolis, Indiana. Paper. Pp. 61, with illustrations. Price $1.25. Springer Publishing Company, 44 East 23rd Street, New York 10, 1960.

CLINICS IN ELECTROCARDIOGRAPHY. By Dale Groom, A.B., M.D., M.S. (in Med.), F.A.C.P., Assistant Professor of Medicine, Medical College of South Carolina, Charleston, South Carolina. Cloth. Pp. 152, with illustrations. Price $8.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1960.

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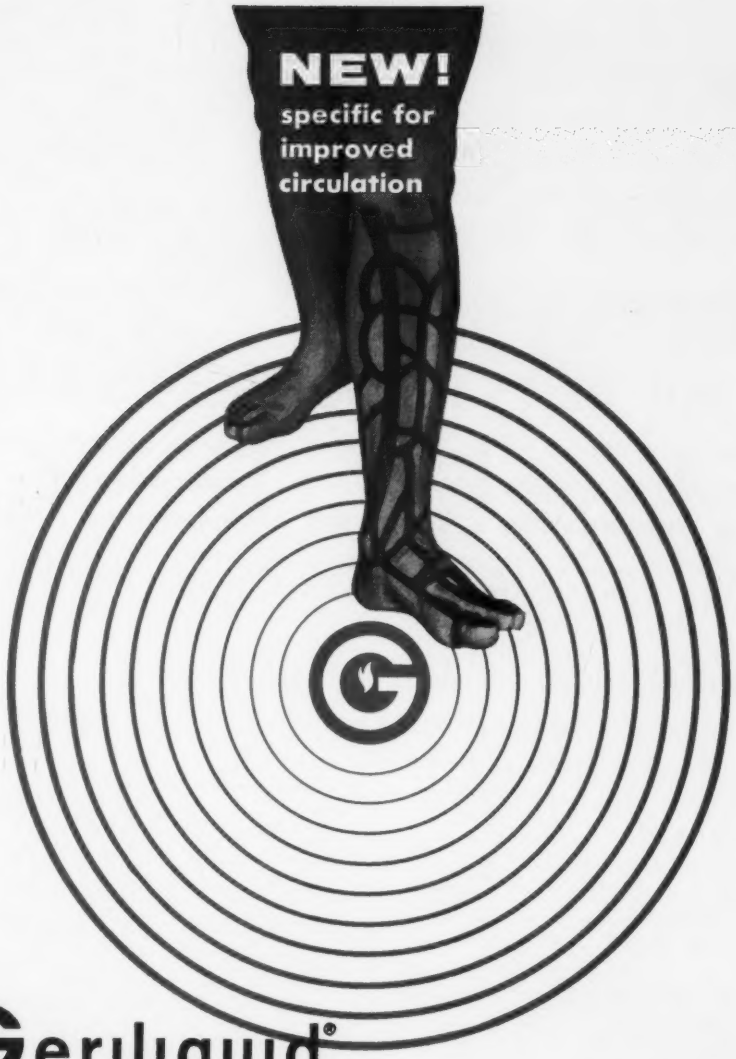

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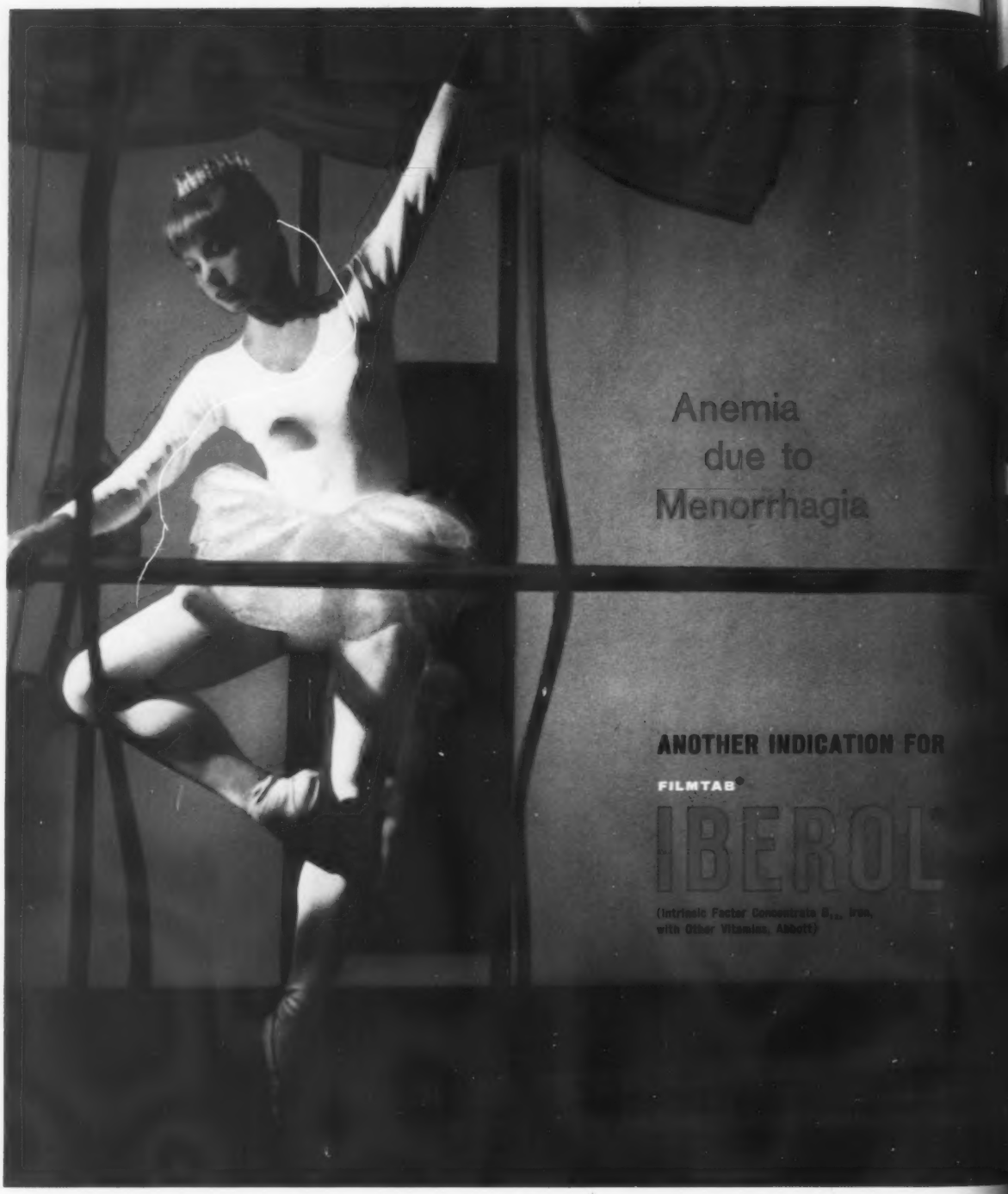

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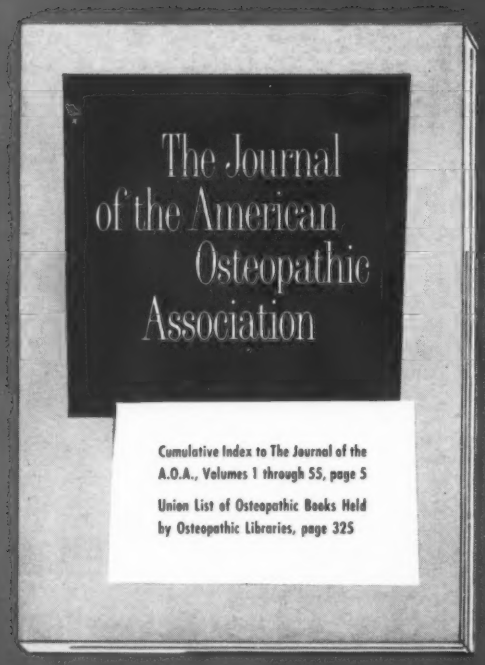
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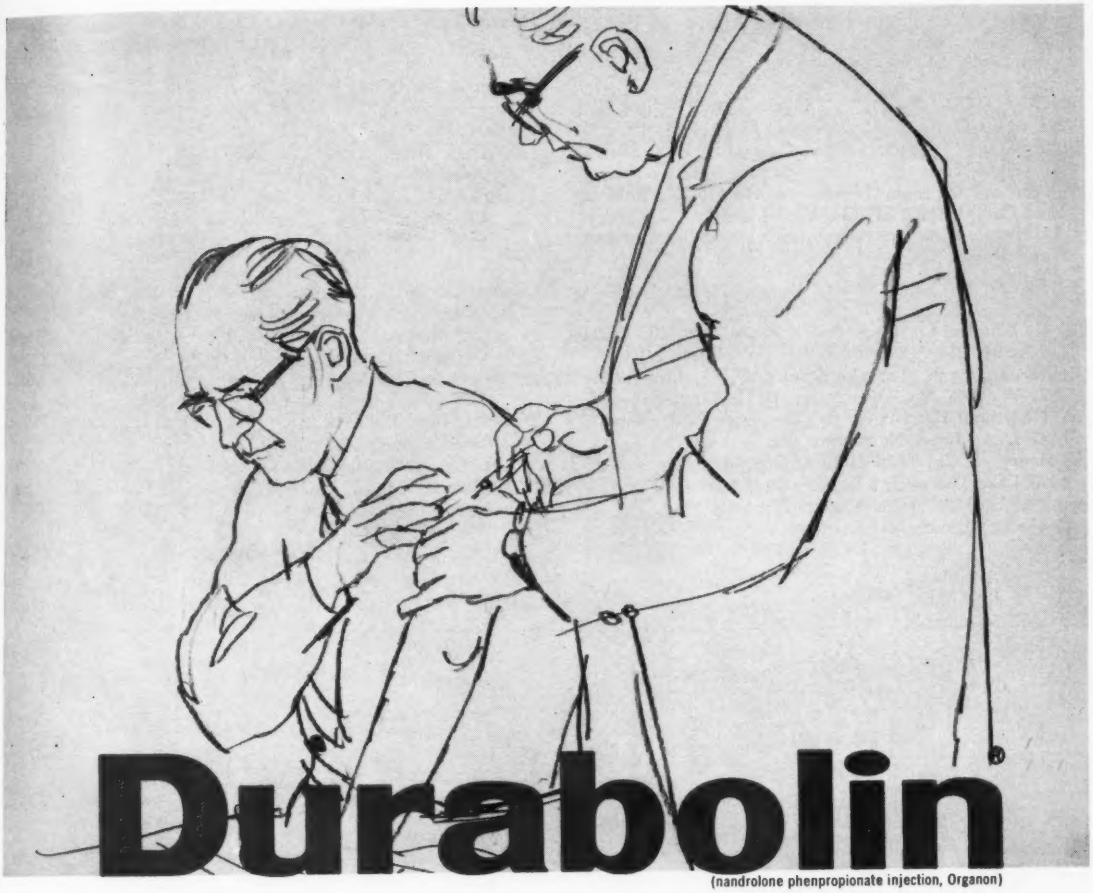

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1. Chapman, T.L., Expectant treatment of benign prostatic enlargement, Lancet 2:684, 1949.
2. Hinman, F., The obstructive prostate, J.A.M.A. 135:136, 1947.
3. Feinblatt, H.M., and Gant, J.C., Palliative treatment of benign prostatic hypertrophy, J. Maine M.A. 49:99, 1958.
4. Ibid. #3, Southwestern Med. 40:109, 1959.

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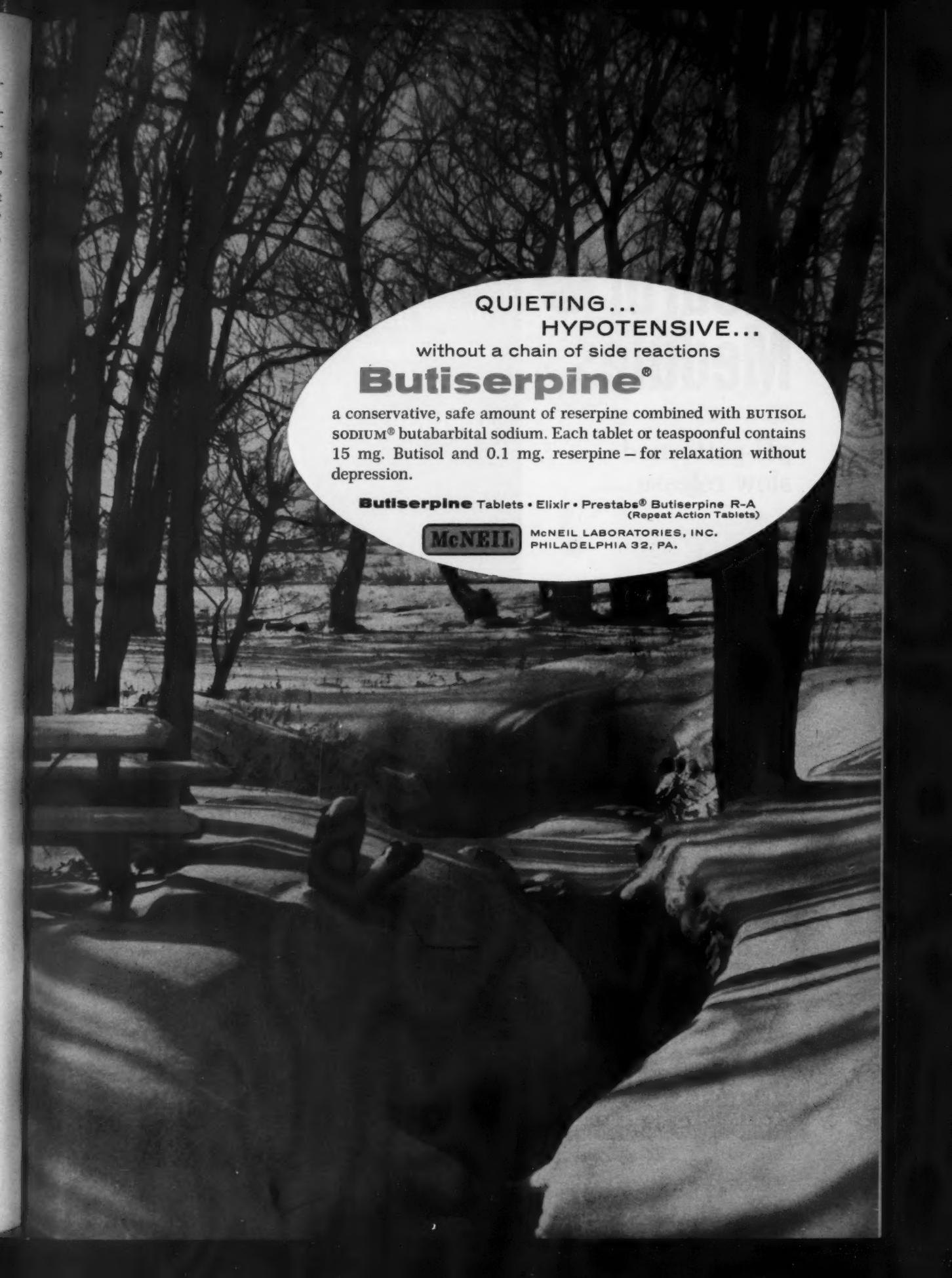
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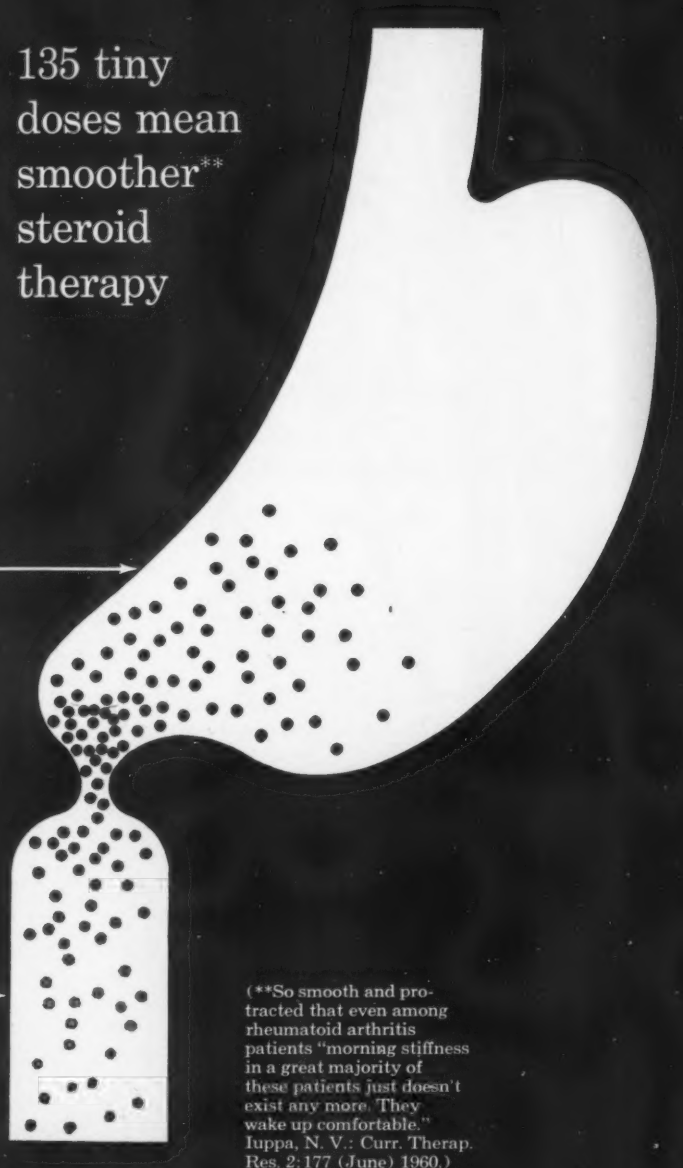

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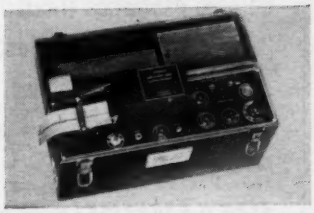

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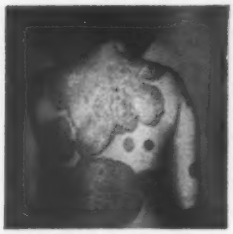

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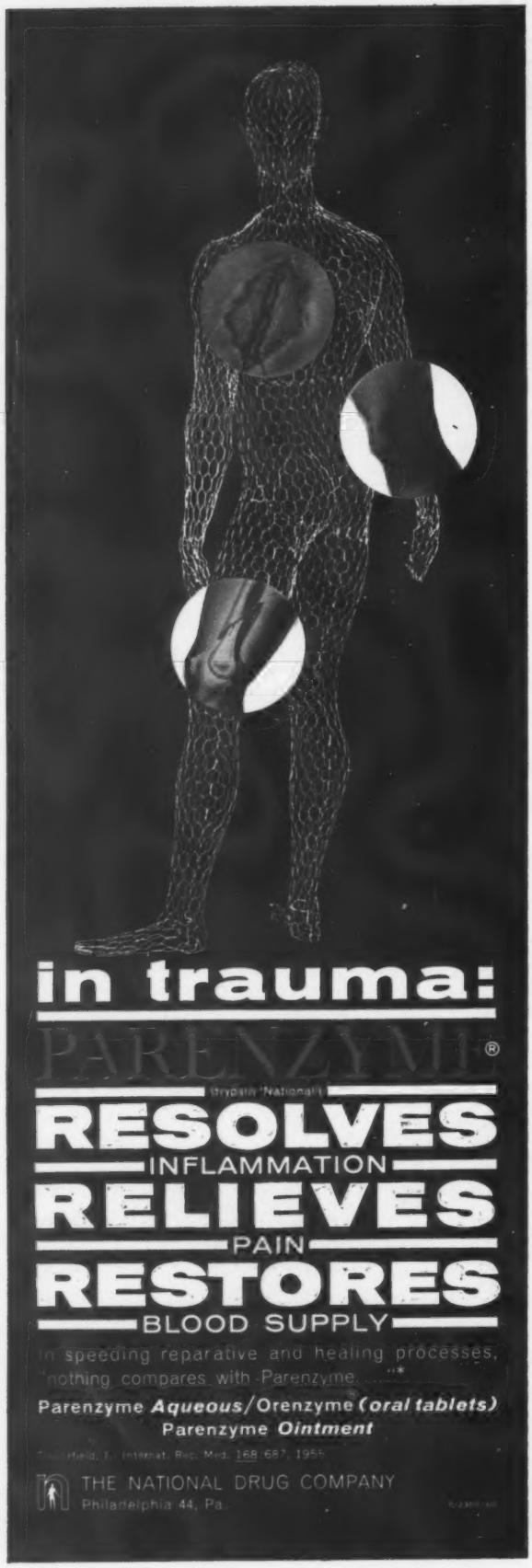

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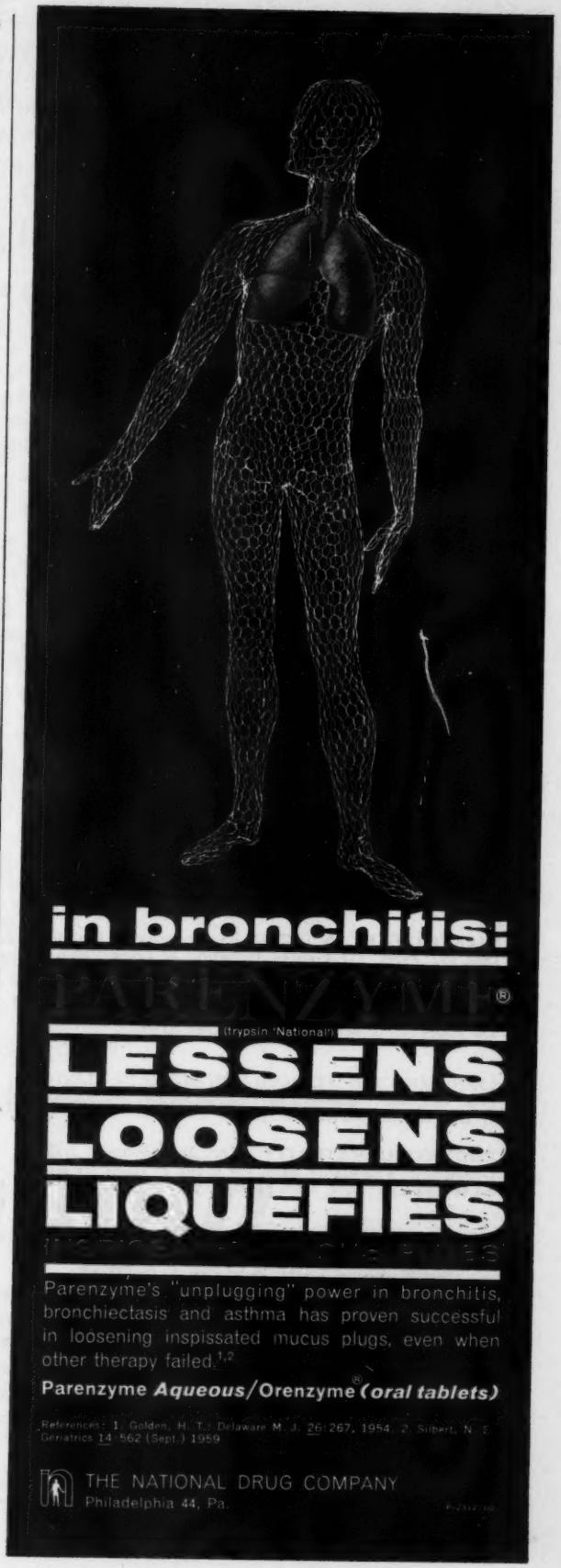
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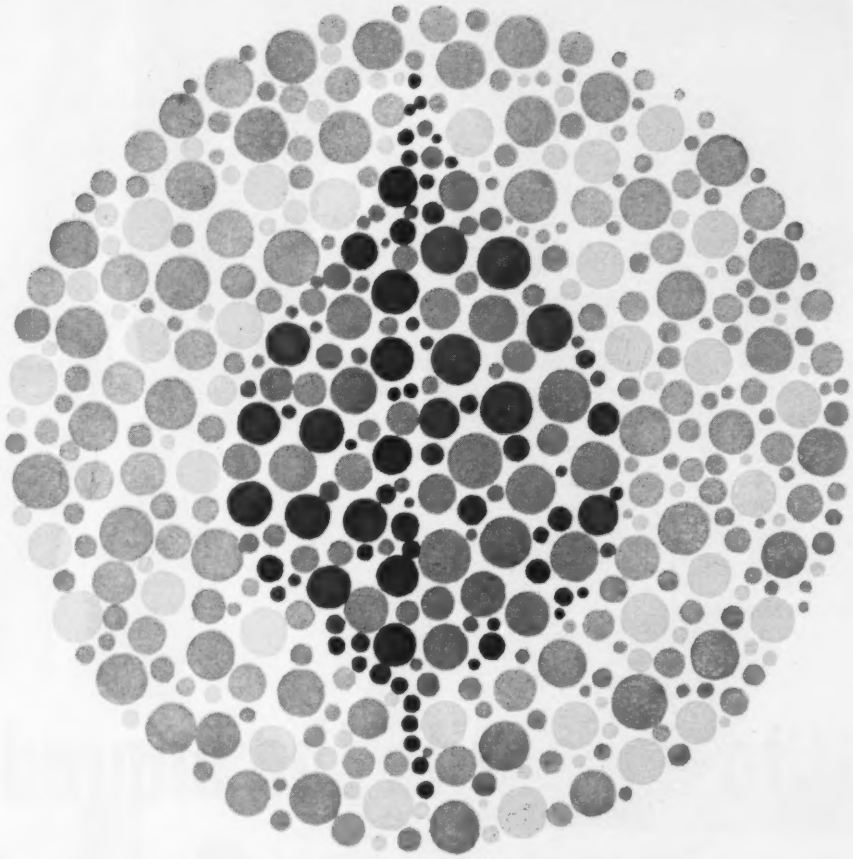

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1. Dimitroff, S. P. et al.: Ann. Int. Med. 39:1180, 1953. 2. Pastor, B. H.: GP 22:85, 1960.

†amorphous gitalin, White

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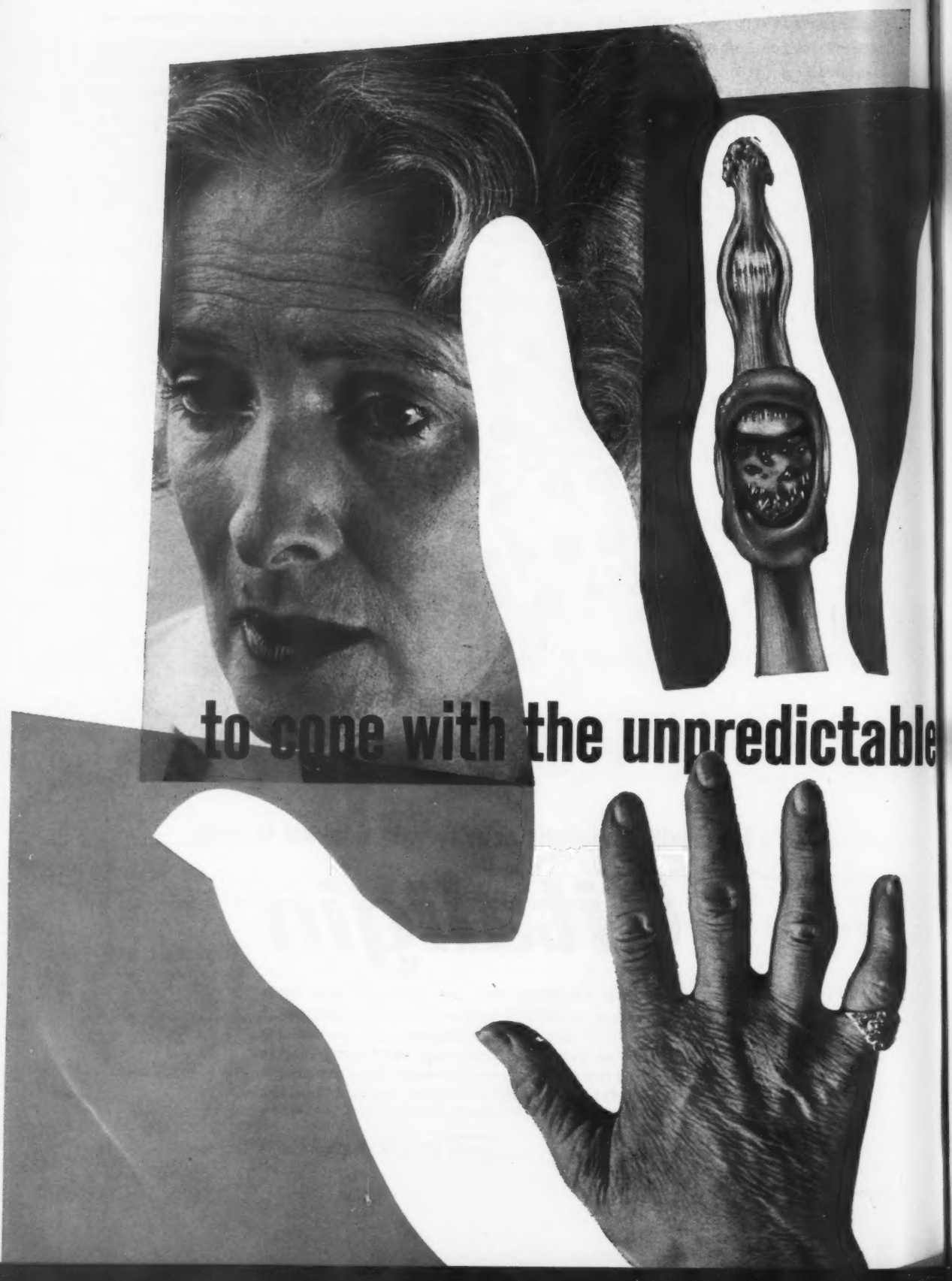
to cope with the unpredictable

RELIEVES THE SYMPTOMS OF RHEUMATOID ARTHRITIS

the pain, rigidity, swelling, morning stiffness, and limitation of motion

With DECADRON, pain, rigidity, and swelling usually fade rapidly, within 24 hours.[1] Morning stiffness often disappears completely.[2] Increased joint mobility and eventual clinical control frequently follow improvement of articular symptoms, even in patients poorly controlled by other corticosteroids.[2-6]

ATTACKS THE INFLAMMATORY PROCESS OF RHEUMATOID ARTHRITIS

the rapid sedimentation rate, the secondary anemia, the fever, elevated plasma fibrinogen and globulin, and decreased plasma albumin

Treatment with DECADRON, by reducing or eliminating inflammation, may also be expected to help eliminate fever, reduce the sedimentation rate, correct abnormal plasma-protein patterns, raise hemoglobin values and red blood cell counts.[8,7-10]

IMPROVES THE GENERAL STATE AND SENSE OF HEALTH

The patient is sometimes markedly undernourished and emaciated

(Cecil, R. L., and Loeb, R. F.: A Textbook of Medicine, ed. 10, Philadelphia, W. B. Saunders Company, 1959, p. 1366.)

thin and asthenic, and very often profoundly depressed.

(Ragan, C., in Comroe's Arthritis and Allied Conditions, ed. 5, Philadelphia, Lea & Febiger, 1958, p. 151.)

The "tonic effect"[11] of dexamethasone often promotes a sense of well-being, leading to improvement in the general state of health, relief of asthenia and depression, restoration of normal nutrition and enjoyment of food.[1,8,11-14]

le pattern of rheumatoid arthritis

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1. Spies, T. D., et al.: South. M. J. *51*:1066, 1958. 2. Bunim, J. J., et al.: Arthritis & Rheumatism *1*:318, 1958. 3. Galli, T., and Mannetti, C.: Minerva med. *50*:949, 1959. And Abstr. in J.A.M.A. *170*:2254, 1959. 4. Case Reports on File, Merck Sharp & Dohme. 5. Boland, E. W.: Ann. Rheumat. Dis. *17*:376, 1958. 6. Boland, E. W.: California Med. *88*:417, 1958. 7. Cislaghi, F., and Quarti, M.: Minerva med. *50*:959, 1959. 8. Foreign Letters: J.A.M.A. *171*:236, 1959. 9. Agostini, A.: Minerva med. *50*:926, 1959. 10. Clinical Data, Merck Sharp & Dohme. 11. Rudolph, J. A., and Rudolph, B. M.: Ann. Allergy *17*:710, 1959. 12. Cerutti, P.: Minerva med. *50*:917, 1959. 13. Cagli, V., et al.: Minerva med. *50*:941, 1959. 14. Chervinsky, P.: Ann. Allergy *17*:714, 1959.

Initial dosage depends on the type and severity of the condition. Generally between 1.5 mg. and 3 mg. per day is adequate; this should be reduced to maintenance level when control has been established. DECADRON is supplied as 0.75 mg. and 0.5 mg. scored, pentagon-shaped tablets and as Injection DECADRON Phosphate in 5-cc. vials, each cc. containing 4 mg. of dexamethasone 21-phosphate as the disodium salt. Additional information available to physicians on request.

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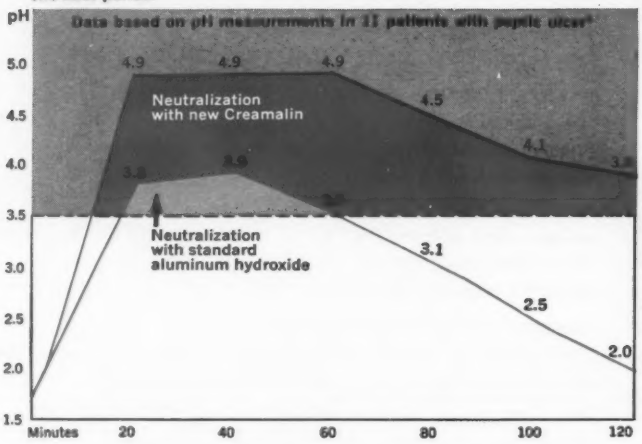

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1. Data in the files of the Department of Medical Research, Winthrop Laboratories. 2. Hinkel, E. T., Jr.; Fisher, M. P., and Tainter, M. L.: J. Am. Pharm. A. (Scient. Ed.) 48:384, July, 1959.

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for peptic ulcer ■ gastritis ■ gastric hyperacidity

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